ENGINEERING NEWS-RECORD

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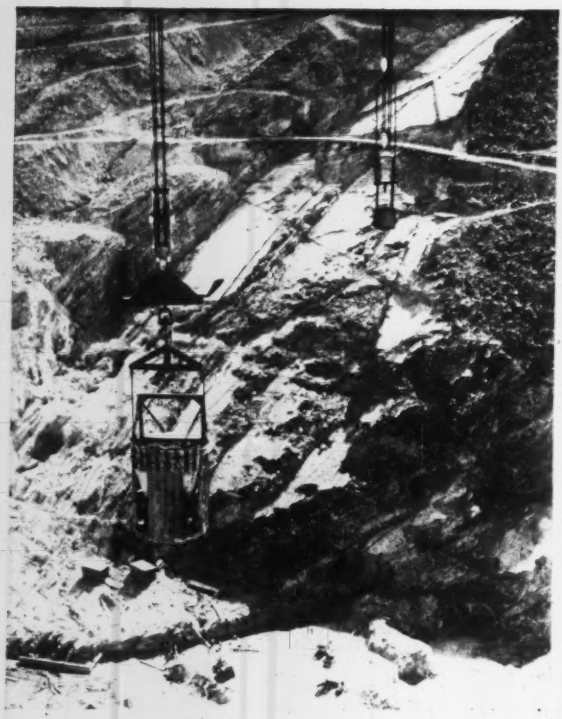
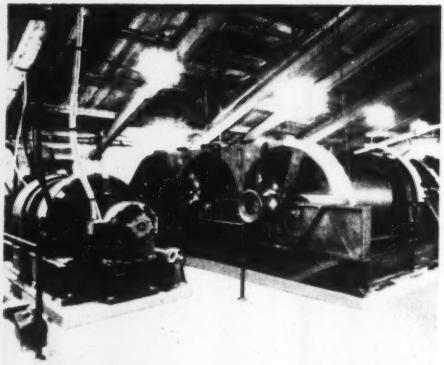
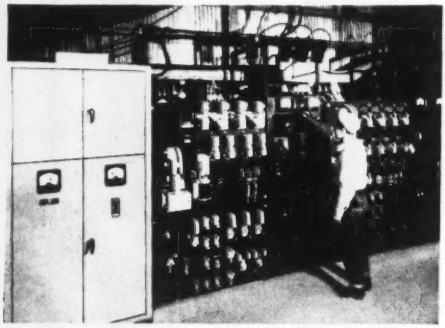




▲ Aerial cableway hoist room showing hoist drums and one of three General Electric motor-generator sets used to drive the powerful G-E 500-hp hoist motors.

◀ Concrete in 8-cubic-yard buckets is moved nearly half a mile on a G-E powered aerial cableway for placing concrete in the construction of Hungry Horse Dam.



Attendant adjusts voltage on G-E switchboard panel. At left is G-E Cabinetrol. Installation provides variable voltage for smooth, accurate speed control of cableway hoists.

BIG LIFT carries concrete across a canyon ... Electrically

G-E Powered Aerial Cableways Vital Link in Concrete Placing at Hungry Horse Dam

Carrying 2,900,000 cubic yards of concrete across a half-mile canyon! It's only one of the big jobs at which the General Shea Morrison Construction Company works night-and-day to complete Hungry Horse Dam on schedule for the Bureau of Reclamation. But they're licking this and the many other problems that face them on the Flathead River site in northwestern Montana. Their answer lies in the use of co-ordinated electric equipment—G-E substations, motors, motor-generators, Cabinetrol*, and switchgear, carefully integrated into one complete system.

Construction equipment electrified by General Electric can provide you with new on-the-job flexibility, speed, and safety. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

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Whether you buy or build construction equipment, your G-E representative can show you how to do a better job at lower cost by complete electrification. Write him now, and he'll call on you at your convenience.

Electrified Construction
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LOWER COST

GENERAL ELECTRIC

664-14

Which wire rope dollar buys the most service?

Isn't it true that when you purchase wire rope, you're actually buying service? Buying what the wire rope will do for you? Buying units of work?

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Their figures prove it. That's why Bethlehem urges the keeping of records—records that show rope costs per unit of work. For we feel that in any such comparisons, Bethlehem rope will stand out from the crowd . . . in a way that will please the user's pocketbook.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 FEBRUARY 22, 1951 No. 8

WALDO G. BOWMAN
Editor

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30 loads per hour with 4 Tournapulls on 4000′ swamp fill haul

Nello Teer Company's Tournapulls help lick toughest section on Annapolis-Washington expressway

On new U.S. 50, connecting Washington, D.C., and Annapolis, Maryland, Contractor Nello L. Teer of Durham, N.C., had 1,400,000 cu. yds. to move on 3½ miles of rugged, hilly terrain and swampland. Teer brought 4 LeTourneau electric-control C Tournapulls, and a rubber-tired Tournadozer to help lick the job's toughest section . . . filling 450,000 yards of silt-sand material across 1100 feet of mucky, tidal inlet. Here's the way Supt. James Love describes it in a recent article in "World Construction":

360 yds. per hour on 4000′ hauls

"On the 450,000 cu. yd. embankment, approximately 200,000 cu. yds. were used to displace mud to a depth of 35 feet or more. The marsh fill was completed entirely from one shore. A single adjacent cut 66 ft. deep and 2300 ft. long provided all material on a downhill delivery. On days when the 4 Tournapulls operated alone on the muck fill, they moved 30 loads, or 360 cu. yds. per hour with 3500-4000 ft. hauls." (That's an average of 7½ loads an hour for each machine . . . and checks with individual time studies which showed that on shorter, 2000-ft. one-way hauls, each "C" averaged 9 loads an hour.) Supt. Love's report continues:

No need for dragline

"Success achieved in displacing swamp muck without need for any draglining is credited to 3 factors: (1) use of dynamite to liquefy muck, so it would displace laterally to a considerable depth under surcharge of the fill; (2) weight of heavy equipment, whose daily passages over the fill accelerated displacement; and (3) the high rate of fill construction, which averaged 7,000 to 8,000 cu. yds. per 10 hours."

On the spongy swamp fill, and steep 20% grades, Tournapull's power-proportioning differential, positive electric steer, and giant, low-pressure tires really paid off in fast, big-payload cycles. You'll like what these job-proved C Tournapulls can do for you. Your LeTourneau Distributor has facts and figures. Call him TODAY!

Nello Teer's rubber-tired Tournadozer push-loaded C Tournapulls on hillside cut . . . helped them get heaped loads in as little as 15 to 30 seconds.

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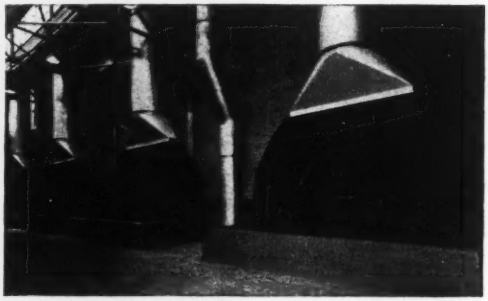
MORE YARDS PER HOUR WITH RUBBER-TIRED POWER

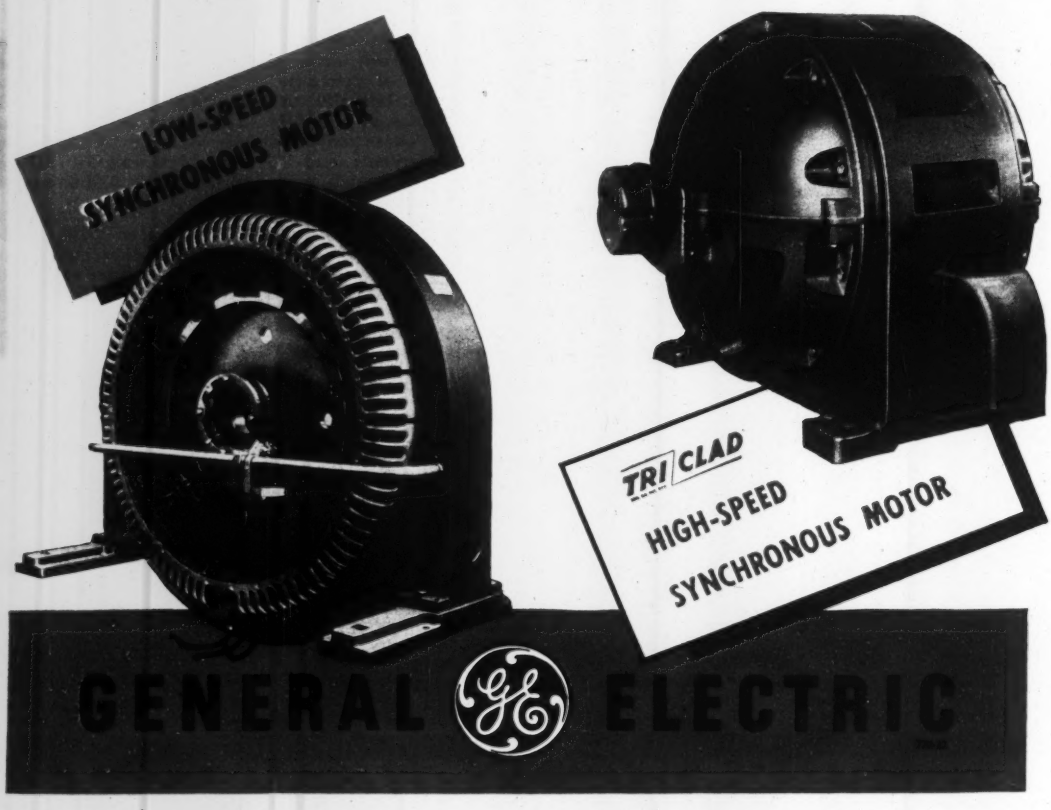
G-E SYNCHRONOUS

SAVE MONEY

SAVE ON OPERATING COSTS . . . Municipal plant gets higher efficiency by continuous operation at constant speed of three 500 horsepower, 1.0 power factor, G-E synchronous motors, each coupled to a centrifugal storm-sewer pump.



SAVE ON INITIAL COST . . . Paper mill selected this 4000 hp, 200 rpm, G-E synchronous motor for driving the montague grinders at low speed. Maximum operating efficiency thus resulted.



MOTORS CUT COSTS
. . . improve performance

IT'S ON THE RECORD . . .

Lower operating costs higher operating efficiency

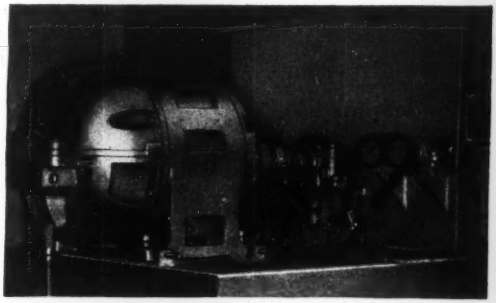
Lower initial cost including control and exciter—for many ratings

Reduced demand and release of needed generating capacity

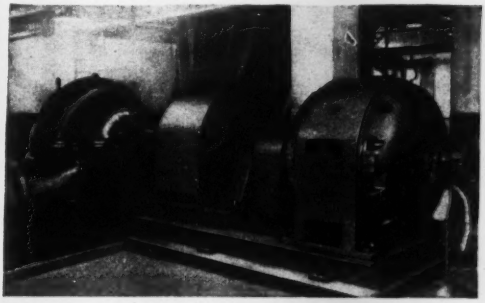
Reduced power rates for improved power factor

For your next large, constant-speed motor, ask your General Electric sales representative to tell you how you can take full advantage of the money-saving features of G-E SYNCHRONOUS MOTORS. Or write for bulletins GEA-5332 (low-speed) or GEA-5426 (high-speed) on your letterhead to *Section 770-22, Apparatus Department, General Electric Company, Schenectady 5, New York.*

GAIN EXTRA PERFORMANCE

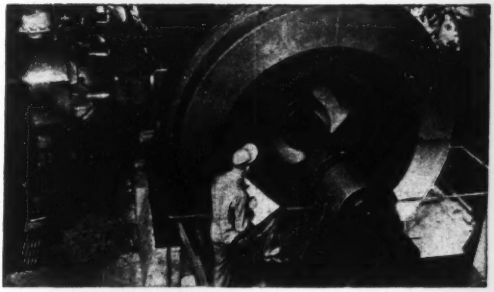


DEPENDABILITY . . . Extra protection against physical damage, electrical breakdown, and operating wear and tear makes Tri-Clad® motors highly suitable for sawmill operations. Here is a Tri-Clad synchronous motor rated 300 hp, 1200 rpm, driving an edger in an Oregon sawmill.



LONG LIFE . . . All welded steel-plate stators assure a permanently solid core, and box-type construction means a rigid frame. This 350 hp, 0.8 p.f. G-E synchronous motor, coupled through magnetic clutch, is matched to a fan pump which delivers stock to paper machine.

SIMPLIFY OPERATING PROBLEMS



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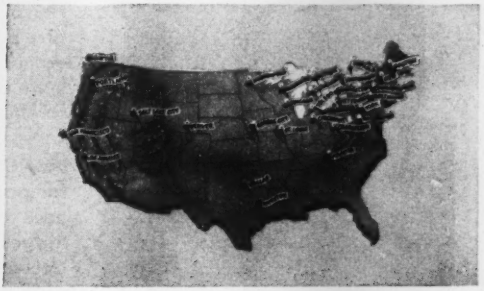

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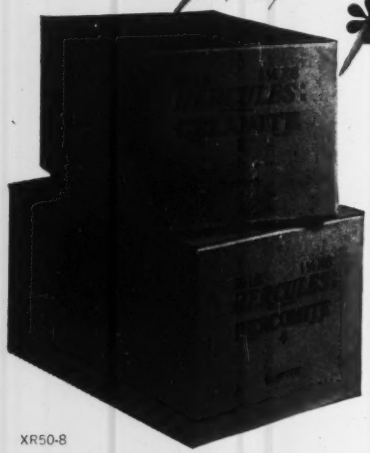

XR50-8

Explosive Power is what you pay for when you buy explosives. You get more E.P. for your dynamite dollar with Hercules Hercomites® and Gelamites® because these explosives not only give better breakage than older-type explosives, but are more economical to use than extra dynamites and gelatins. And there's a series for practically every mining, quarrying, and construction need.

"Hercomites," for example, come in fast, intermediate, and slow heaving-action types. One series is especially designed for poorly ventilated places. All offer improved water resistance and, like "Gelamites," come in handy Tamptite® cartridges. For full information, write for illustrated booklet, "Hercomites and Gelamites for Lower Blasting Costs."

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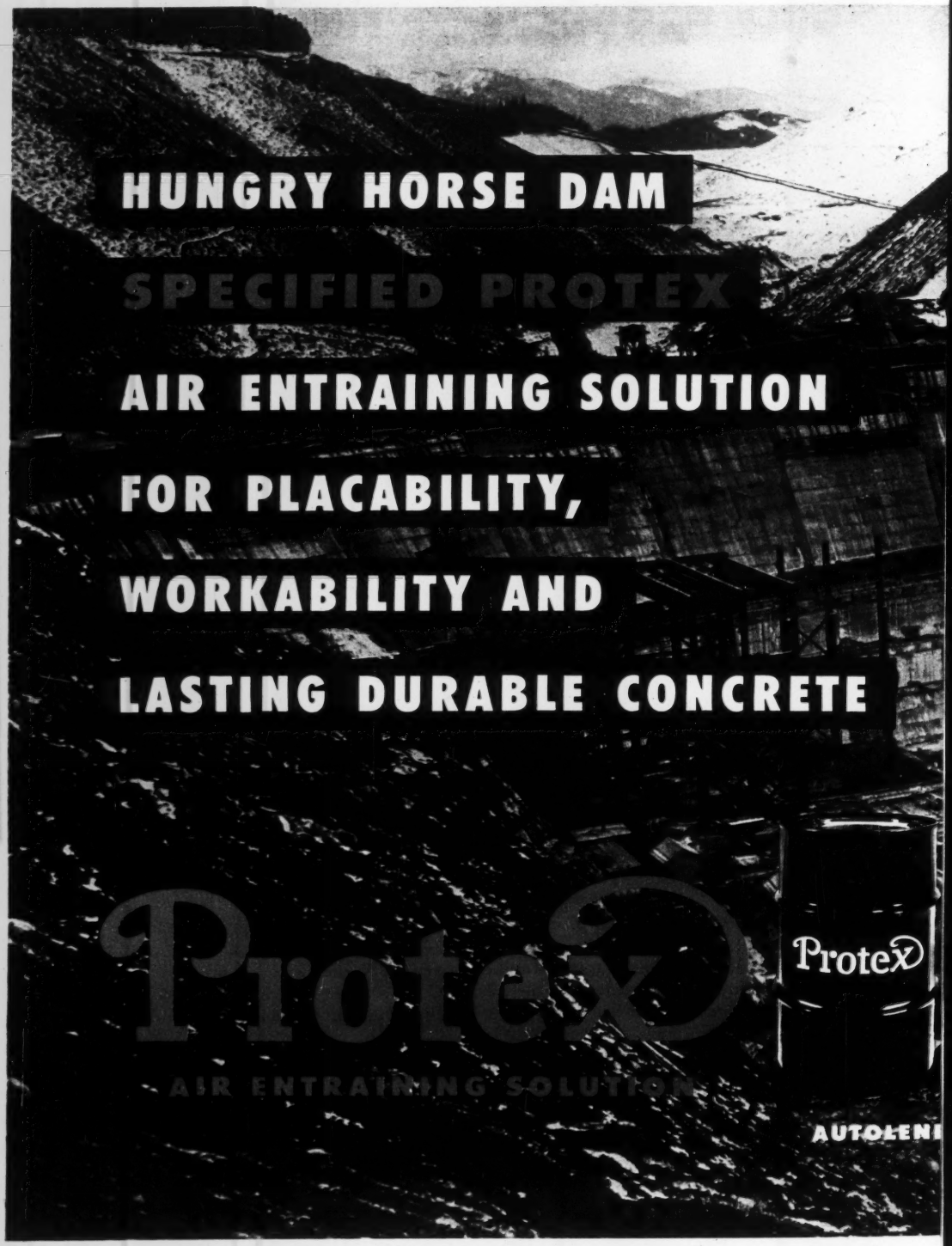
HUNGRY HORSE DAM
SPECIFIED PROTEX
AIR ENTRAINING SOLUTION
FOR PLACABILITY,
WORKABILITY AND
LASTING DURABLE CONCRETE
Protex
AIR ENTRAINING SOLUTION
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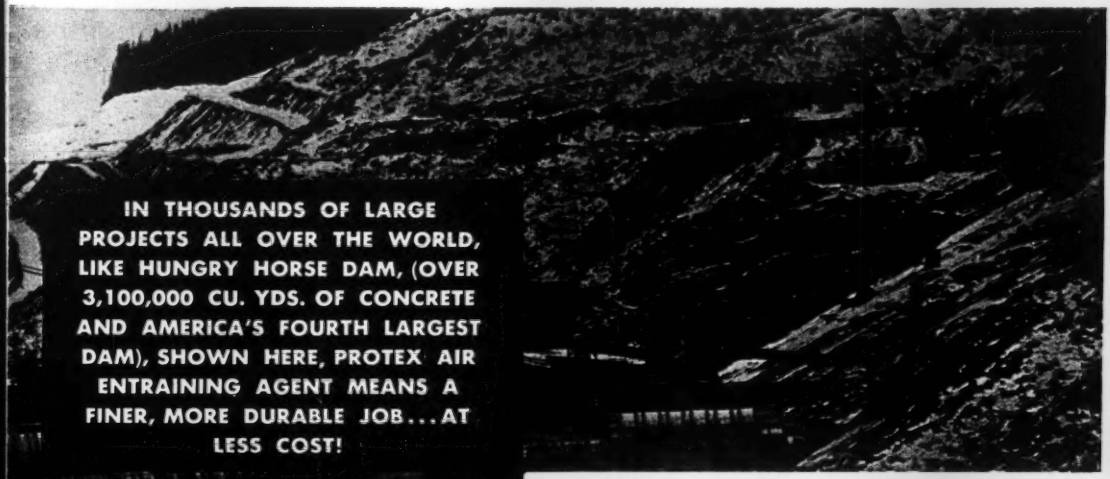

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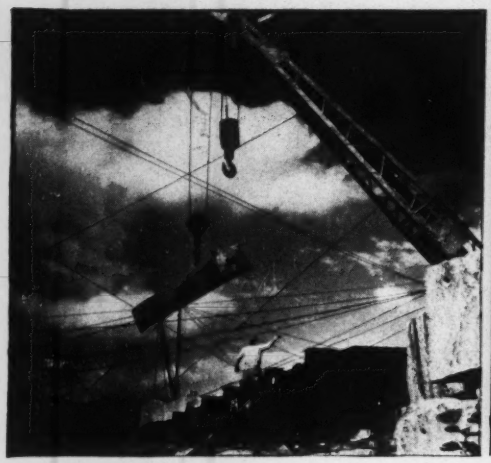
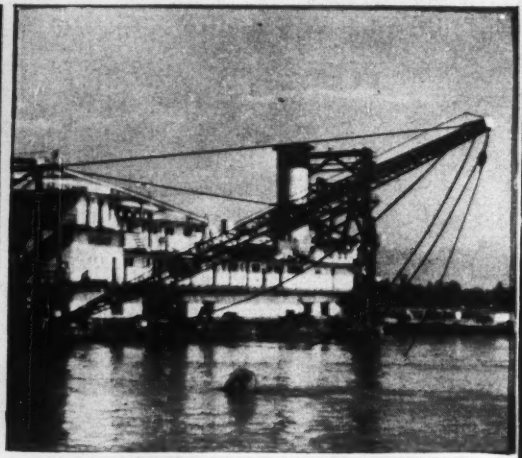
FOR JOBS LIKE THESE...

You've got to have a rope with guts



HIGH, WIDE AND HANDSOME. Quarries need wire rope that will run fast, support tremendous weight. This photograph shows TIGER BRAND Wire Rope used for derrick and mast guys, and hoisting ropes, in a nationally-known quarry.

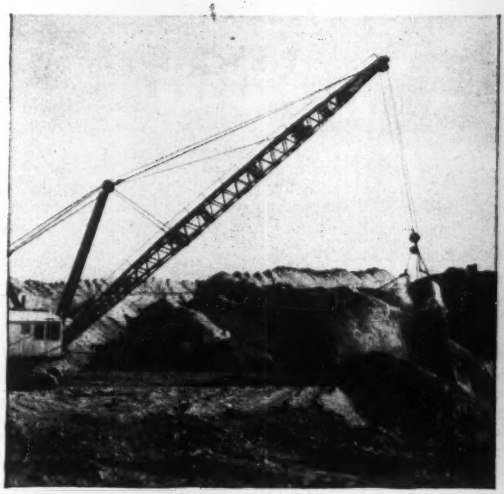


WET AND MUCKY. TIGER BRAND Wire Rope furnishes the muscles for this big Mississippi dredge. Constantly in and out of water . . . subjected to extreme loads . . . TIGER BRAND delivers economical heavy-duty service that pays off in fewer rope replacements.

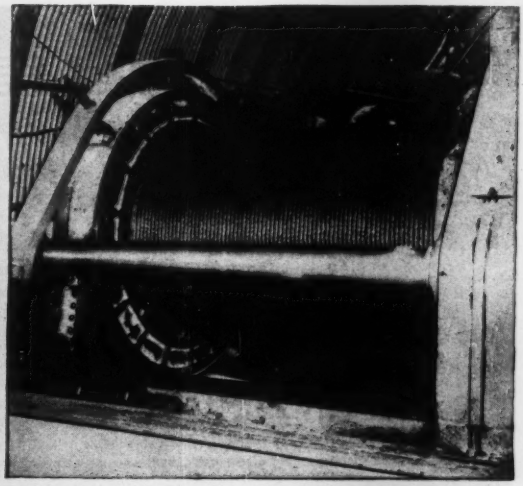
A ROPE'S TOUGHEST DIGGING JOB. Dust and grit spell short life for inferior rope—if it's used in strip mining. But you can count on TIGER BRAND Wire Rope to give matchless performance under the toughest operating conditions.

TIGER WIRE ROPE SLINGS

We can furnish a complete line of 8, 6, 4-part and laid slings as well as all standard and special wire rope fittings. Choose from our standard selection or, if you have a special problem, we'll make special slings to your specifications. Write for our free booklet, "American Tiger Wire Rope Slings."



OUT GOES THE OVERBURDEN. Stripping overburden usually means high shock stresses on the rope. TIGER BRAND Wire Rope—made in the widest variety of styles—is available to meet unusual conditions of shock . . . abrasion . . . high loads.



READY FOR A WORKOUT. TIGER BRAND Wire Rope has the flexibility to withstand constant coiling and uncoiling. When properly lubricated and maintained, TIGER BRAND Wire Rope will give you dollar for dollar service that can't be beat by any other wire rope.

FOR HIGH STRENGTH, GREAT FLEXIBILITY AND A COMPLETE RANGE OF SIZES AND STYLES—USE

TIGER BRAND WIRE ROPE

Judge it by the jobs it handles!

Most premature rope failures can be traced to improper selection, maintenance or installation.

Your TIGER BRAND field service engineer can help you with all these problems. A skilled engineer, he has access to a tremendous file of case histories. He knows how to pick the *best* kind of wire rope for your own job—the type of core, the kind of steel, the construction, the lay and the finish—all things that must be considered for top performance.

Your TIGER BRAND field service engineer will do more than help you select the rope. He'll show you how to use it most effectively with your running equipment. He might, for example, suggest that you use:

MANGANESE STEEL SHEAVES TO INCREASE ROPE LIFE

Soft steel sheaves can cause trouble. Tiny slivers of metal become imbedded in the rope and "grind" it until it fails. Furthermore, the rope will cause corrugations in the sheave. In turn, these corrugations can ruin the rope that caused them. Manganese steel sheaves actually harden and polish themselves under severe pressure and friction. So they continuously present a smooth surface to the rope—and lengthen its life.

If you have a special application that's tough on wire rope, get in touch with your TIGER BRAND field service engineer. Meanwhile, you'll find a wealth of knowledge in our information-packed handbook, "American TIGER BRAND Wire Rope." Write for it today.

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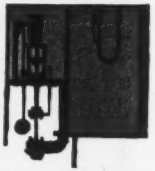
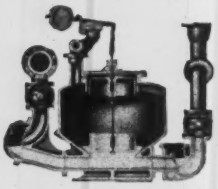


SEWAGE EJECTION — Acknowledged throughout the world as approaching perfection, the trusty Shone* Pneumatic Sewage Ejector is ideal—wherever gallonage is limited and solids are not. Yeomans also builds centrifugal sewage pumps for both wet pit and dry pit installations—in sizes up to 14 inches and capacities up to 24,000 gpm.



Full information concerning Yeomans Pumps, with useful engineering data and installation drawings, is published in Sweet's Architectural and Engineering Files; and also in separate bulletins for your Data File—sent promptly on request. Use the coupon

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☐ Sewage Disposal

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NEWS BRIEFS

Old folks at home—The Florida State Improvement Commission is trying to work out a scheme for building neighborhood villages where retired workers can live in dwellings renting for $15 per month. Walter E. Keyes, executive director, says long-range loans will be sought to finance the villages. Governor Fuller Warren has appointed a Citizens Retirement Committee to work with the commission. Their goal is to provide dwellings for workers retiring on $125 per month and desiring to live out their years in Florida's sunshine. The homes will have yards where the residents can have gardens. Ramps will be used in place of steps.

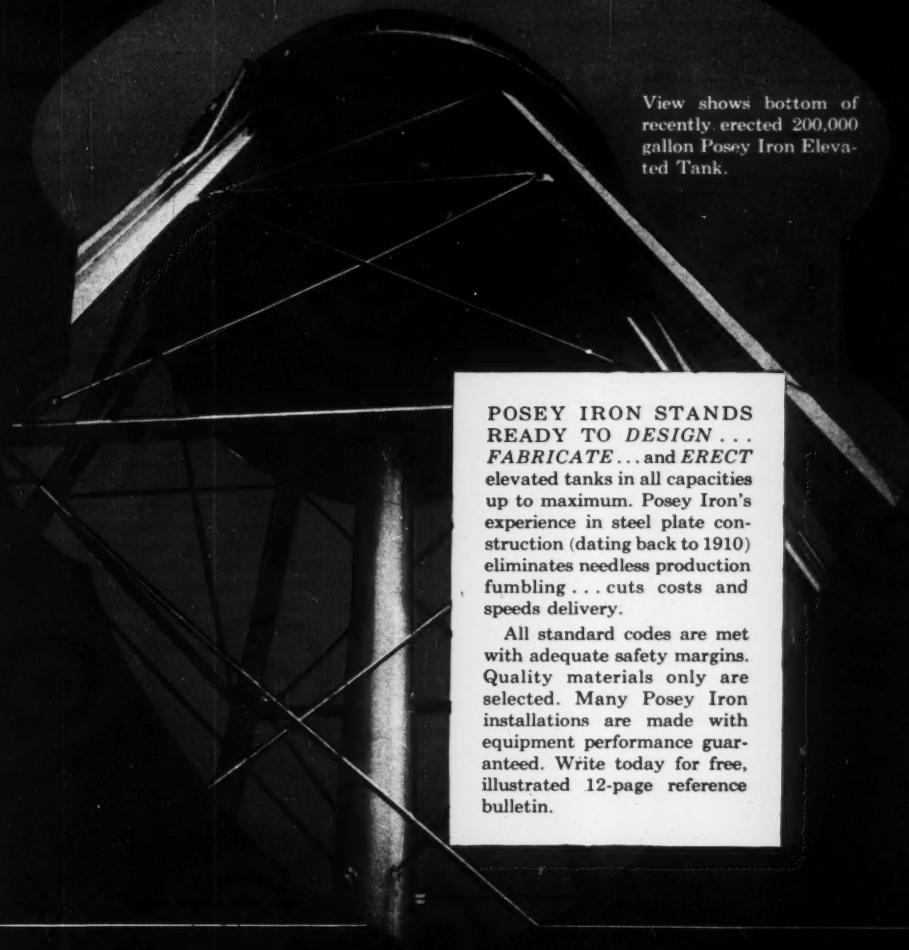
Air maps save time—Plant construction schedules for Atomic Energy Commission facilities in the 200,000-acre South Carolina tract are being speeded by many weeks by air mapping. The huge survey of the Savannah River plant near Aiken is being made by Aero Service Corp., which also mapped the Oak Ridge facility in 1942. All maps for the area will be delivered within five months through double-shift, round-the-clock map compilation schedules at the Philadelphia offices of the corporation.

Crossing the Delaware—Representatives of the New Jersey State Highway Department, the New Jersey Turnpike Authority, the Pennsylvania State Highway Department, the Pennsylvania Turnpike Commission, the Delaware River Joint Toll Bridge Commission, and the Delaware River Joint Commission have been meeting at the suggestion of Governor Driscoll of New Jersey. The purpose is to discuss plans for the crossing of the Delaware River by traffic carried on the Pennsylvania and New Jersey turnpikes and the regular highway systems of the two states. There was also a general discussion of the possible future need of new bridges across the river in the Philadelphia, Camden and Trenton areas.

The Sun may shine again—The Sun Building property at 280 Broadway, New York City, overlooking City Hall Park, has been bought by Charles F. Noyes, Robert W. Dowling and associates in a transaction that eventually may involve $40,000,000. It is planned to improve the historic site with a multi-story office building having a rentable area of more than 1,000,000 sq. ft. The plot of about 35,000 sq. ft. with frontage of 150

(*Continued on page 15*)

WORMS EYE VIEW OF SAFE STORAGE



View shows bottom of recently erected 200,000 gallon Posey Iron Elevated Tank.

POSEY IRON STANDS READY TO *DESIGN* . . . *FABRICATE* . . . and *ERECT* elevated tanks in all capacities up to maximum. Posey Iron's experience in steel plate construction (dating back to 1910) eliminates needless production fumbling . . . cuts costs and speeds delivery.

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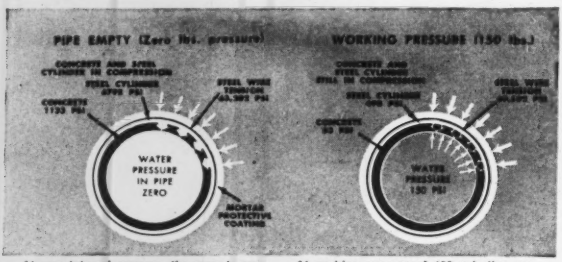
HOW Prestressing MAKES CONCRETE and STEEL PRESSURE PIPE an...

Elastic Structure

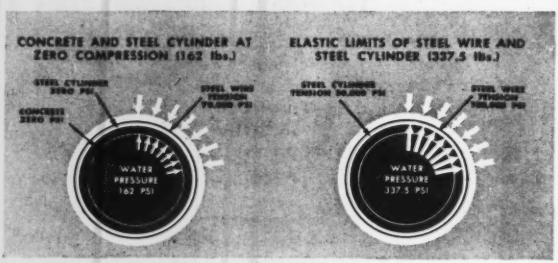
Structural Changes That Occur When Pressure Is Increased In A Typical Class 150 30" Pipe

(Similar conditions exist in pipe 16" in diameter and larger)


PIPE EMPTY (Zero lbs. pressure)
WORKING PRESSURE (150 lbs.)
WATER PRESSURE IN PIPE ZERO
WATER PRESSURE 150 PSI
MORTAR PROTECTIVE COATING

At zero internal pressure, the concrete core and steel cylinder are compressed by the steel wire wrapping.

At working pressure of 150 psi, the compression in both the steel cylinder and concrete core is partially relieved by the internal pressure of the water, but still remain in compression.


CONCRETE AND STEEL CYLINDER AT ZERO COMPRESSION (162 lbs.)
ELASTIC LIMITS OF STEEL WIRE AND STEEL CYLINDER (337.5 lbs.)
WATER PRESSURE 162 PSI
WATER PRESSURE 337.5 PSI

With internal pressure at 162 psi, the compressive stress in the concrete core and steel cylinder is zero. They go into tension only after pressure increases past this point.

As internal pressure is increased further, tensile stress of steel cylinder and wire increase uniformly until they reach their elastic limits at 337.5 psi.

Prestressed Concrete Steel-Cylinder Pipe consists of a structural core of concrete, a water-tight steel cylinder, a wrapping of steel wire, and a protective coating of cement mortar.

The pipe is prestressed by wrapping the high-tensile wire around the steel cylinder and cured concrete core. The wire is wound under tension and compresses both the cylinder and the concrete core.

As water pressure inside the pipe increases, this compression decreases. The steel cylinder and concrete core go into tension only after the compression is relieved. *At normal operating pressure,* the concrete core and steel cylinder are *still under compression.*

Because of this design, the concrete core, the steel cylinder and the wire wrapping continue to act as *an elastic structure,* in spite of their different characteristics.

Price Brothers engineers know pipe line design and construction problems. We will be glad to estimate pipe and installation costs, without obligation.

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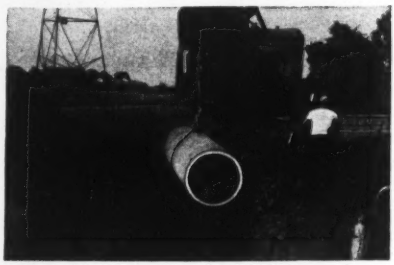

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1769

(Continued from page 12)

ft. on Broadway and 225 ft. each on Chambers and Reade Streets, is one of the finest in downtown Manhattan. It was long famous as the home of the New York Sun and before that of the A. T. Stewart store. It was also the locale of the offices of Frank W. Woolworth and Frank A. Munsey. Construction on the new skyscraper will be in abeyance temporarily due to federal restrictions on commercial building.

"The world will little note"—Lincoln's Gettysburg address is being carved on a 3-ton piece of Indiana limestone by the Billman Monument Co. of Logansport, Ind. It will be placed on a ridge overlooking that city. The carving will be in the form of an open book 8 ft wide, 5 ft high and 1 ft thick. Carl Billman says "I think that it's time the public has an opportunity to see and read a good speech."

"Get it in writin', Sammy"—There's a tempest in a teapot in Maryland about Charles E. Brohawn, a contractor of Cambridge, Md., having done about $30,000 worth of work on a $271,000 project at Princess Anne College without a written contract.

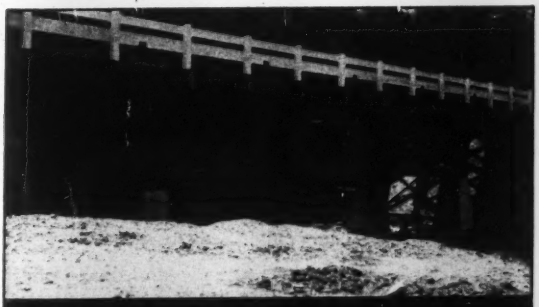
The Board of Public Works has declined to act on the contract, and work on the project—a Negro adjunct of the University of Maryland—stopped on Jan. 9.

The statement has been made that the go-ahead signal had been given to Brohawn originally by President H. C. Byrd of the university, but Dr. Byrd asserts that he made his approval conditional upon an O.K. by the Department of Public Improvements. So that's where the matter stands at present and the contractor stands to lose $30,000 unless some adjustment can be made.

The Cover

Among the less glamorous (but highly pictorial and necessary) work on the huge Columbia Basin project is that on the distribution system shown in our cover picture.

A relatively open winter (at least through January) has made possible continuation of work. Here a crane and muscle-power fit into place a section of 42-in. concrete pipe to extend a main lateral so that it can serve several hundred additional farms next summer—part of the 87,000 acres that will receive added water supplies in 1951. (Bureau of Reclamation Photo).



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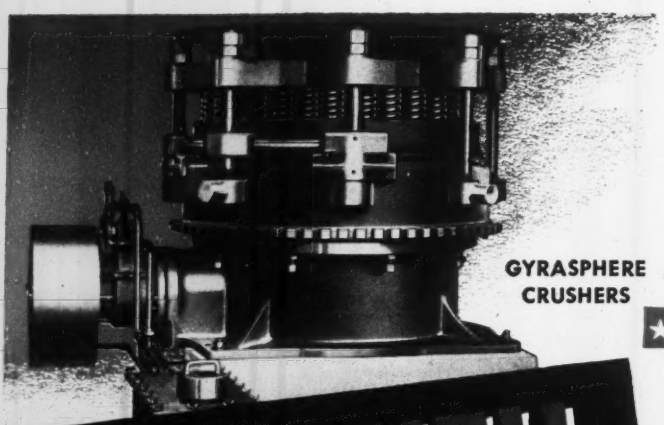
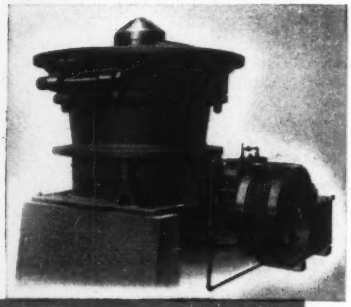
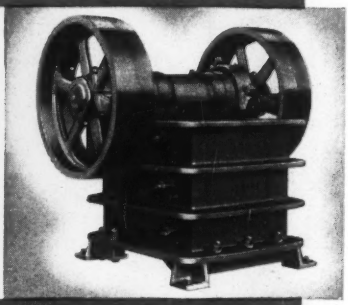


GYRASPHERE CRUSHERS



★ GYRATORY BREAKERS

TELSMITH CRUSHERS



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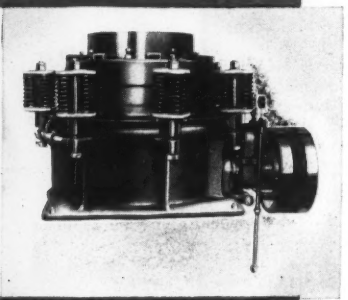
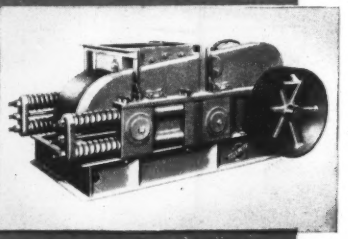


★ INTERCONE CRUSHERS



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THE CONSTRUCTION WEEK

COMMERCIAL BUILDING CREDIT—Imposition of stiff credit controls by the Federal Reserve Board on financing of new commercial building will have no measurable effect on the number of projects started. Licensing of such jobs is in the hands of NPA. FRB requirements for 50% down-payment by the owner and 25-year, pay-as-you-go maximum mortgage terms may have a minor effect in reducing the volume of commercial building applications, however.

50-TON STEEL LIMIT—Decision on any commercial building calling for more than 50 tons of steel will be made by NPA's Construction Controls Division, in Washington. Regional offices may issue permits for jobs up to $1,000,000—provided the 50-ton limit is not exceeded.

FEW BUILDING LICENSES—NPA will interpret strictly the criteria set to classify commercial buildings as essential to: (1) defense; (2) health, safety and welfare of the people; or (3) the business life of the community. Otherwise, the sponsor's application will be rejected. The agency expects to issue few permits under these rigid requirements.

HARRISON TO RETIRE?—Defense Production Administrator William H. Harrison has the solid backing of his chief, defense mobilizer Charles E. Wilson. When Harrison recovers fully from the flu and fatigue brought on by overwork, he can stay on the job as long as he chooses.

INDUSTRY IS ABLE—The Chamber of Commerce of the U. S. asks reliance upon the private construction industry for needed defense housing. Chamber claims that government "stimulation" under controls reduces private construction about 50%; and that builders are ready and willing to build all the defense housing as fast as needed.

ALTERNATE FOR CANAL—A plan for a conveyor belt around Sault Ste. Marie is getting attention at the Pentagon. Canal, which links Superior with other lakes, is the busiest in the world. If closed by enemy action, steel mills would not receive Mesabi ore.

TAXES MAY CATCH DIESEL FUEL—Ohio fiscal planners recently recommended putting a state tax of 7½ cents per gallon on diesel oil. Reason for high rate: "Diesel-powered vehicles operate substantially more miles per gallon than gasoline-powered vehicles."

CONSTRUCTION ELECTION?—The confused issue of whether to hold union shop elections in the construction industry is now up for formal consideration by the National Labor Relations Board. Former NLRB counsel Robert Denham threw up his hands at the impossibility of such elections after a try in the Pittsburgh area two years ago, would hold no other elections—a decision that didn't displease union men too much. But now, two plumbers union locals—one in Baltimore, the other in Olean, N. Y.—are pressuring. In formal hearings, the board heard eight other AFL building trades groups oppose the election on grounds that it would create chaos in handling jurisdictional disputes by protecting the work assignments of plumbers; other trades would immediately demand similar elections. The two locals contend that plumbing is a separate craft, that the NLRB cannot deny an election, and that certification of the union wouldn't disrupt jurisdictional settlements by the Industry's Joint Board. Olean and Baltimore employers want the elections so they'll be protected from possible damages for recognition of uncertified unions.

positive corrosion protection at lower yearly cost

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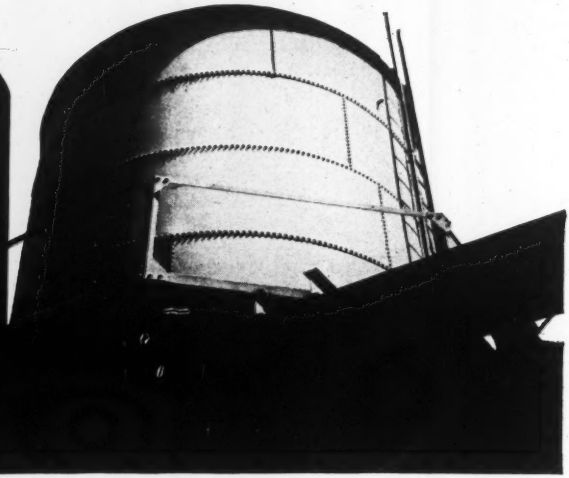
ZINC AND ALUMINUM



15,000 gallon sprinkler tank. Interior metallized with .006" pure zinc, in 1934—no trace of corrosion in 1950.

The long-lasting, corrosion resistant qualities of pure metallized zinc and aluminum coatings are well known. Life expectancies for protective coatings of this nature, properly applied, usually range upwards of 20-30 years without further attention.

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These include actual immersion in salt or fresh water of various pH values; exposure to water ballast, condensate and some mild acid solutions; salt, humid, rural and industrial atmospheres ranging from light to heavy. The Systems also contain provisions for appearance requirements with specific organic coatings, available in a range of colors, all thoroughly tested for compatibility with the metallized zinc or aluminum.

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CONSTRUCTION TRENDS

FAST-GROWING POPULATION NEEDS MORE PUBLIC SCHOOLS

Phenominal growth in the number of school-age youngsters is straining U. S. schools to the limit. Needs for new public schools are growing so fast that it will take years for building to catch up.

Public school systems have been trying to keep up with the need—the Department of Commerce estimates that they spend about $1.16 billion on new buildings last year. Private institutions added about $298 million. But the population has gone right on growing, feeding children into the classrooms faster than new buildings could be put into operation.

Now mobilization threatens to curtail school-building—as it did during the last war—by diverting supplies of steel and other construction materials to defense.

But this time the need for new school facilities is so great and so obvious that it can't be ignored—even during mobilization. So U. S. school-building is expected to continue at a high level, in spite of shortages.

HERITAGE OF WAR—The trouble started during the last war, when the U. S. built tanks and factories instead of public schools. Wartime and postwar jumps in the birth rate made the problem worse.

As a result, present schools can't handle the school-age population. A N. Y. Times' survey shows that the education of 1.5 million children will suffer this year because of inadequate buildings. More and more schools in the larger cities are being forced to divide classes into two shifts.

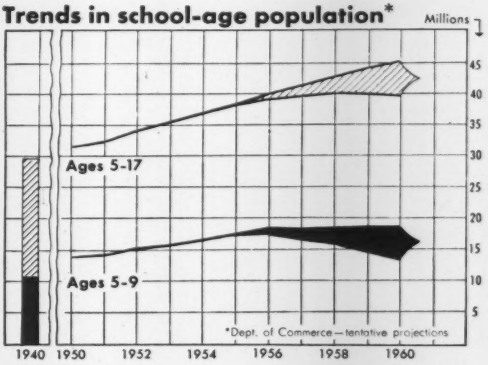
This year it was aggravated by a jump of 900,000 in public school enrollment. But enrollment will increase even faster in the middle fifties than it is now. After 1952, annual increases will run well over a million a year for several years.

High recent birth rates cause the expected increase. In 1940 the Census Bureau counted 10.7 million children between ages five and nine. Today the number is estimated at 14 million, and it is still growing fast. It won't reach its peak size until 1955, at least—and may go on climbing right through 1960.

These facts show what the schools can expect. Enrollment in grades one through eight won't be at a maximum until the middle and late fifties. First grade will be most crowded in 1955, second grade the next year, and so on. High school enrollment will continue to rise past 1960.

These expectations are based on normal birth rates. If the present emergency causes a big jump in the birth rate a much larger group of younger children will hit the schools in the second half of the decade.

Trends in school-age population*



DEFENSE THREATENS SCHOOL-BUILDING—U. S. public school systems are trying hard to catch up with the growth in enrollment. Last year they raised spending for construction about 24% above 1949.

But now school-building programs face two new problems: the rising cost of construction, and the danger that mobilization will dry up supplies of key materials.

Rising costs may hold up some school-building for a while, as officials wait for costs to fall again. Voters are pretty sensitive about authorizing higher taxes or a big increase in the local public debt.

The real problem comes from mobilization. Local authorities still are not sure they will get scarce materials, as rearmament takes a bigger share for essential defense projects.

But it's beginning to look as if Washington considers school building essential, too.

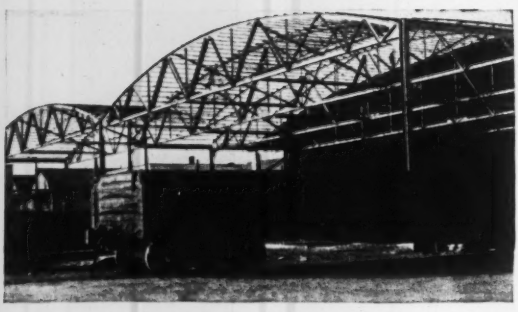
"Strong elementary and secondary educational systems . . . are vital to national strength," President Truman said in his budget message. He indicated Federal expenditures of $431 billion during fiscal 1952 for promotion of education.

Only a small part of this money will go for construction. But the fact that the President asked for it shows the administration is interested in public school development—and will probably back the school systems in their desire to go on building.

Just how this will work out for scarce materials isn't yet clear, but Defense Mobilizer Charles E. Wilson gave a clue when he wrote that ". . . every effort will be made to support the construction of schools. . . ." That seems to indicate that defense officials will do their best to keep school-building going.

Rising costs and shortages of materials will make it harder to build new schools this year and next. But, short of a major war, rapidly rising enrollment will force school systems to go on building—and the government will help by making scarce materials available.

BEST WAY TO SPEED A PLANT EXPANSION PROGRAM — A Macomber Steel Building Of Standardized Structural Units



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An answer and a challenge

AN ELECTRONIC PLUMB-BOB has been developed that indicates where the lower ends of piles driven as open tubes are located when boulders or other obstructions have deflected the bottom out of view from the surface (ENR Feb. 8, p. 39). This new knowledge gives a basis for engineering evaluation of the carrying ability of the pile and permits at least partial use, compared to a former policy of rejecting the pile when a light lowered to the bottom could not be seen from the surface. The device will aid materially in deep foundations where difficult driving may result in known substandard conditions in open type piles.

But there is an even larger question: Where the lower ends of solid piles—precast concrete, timber or structural section—go as they pass into the ground. It is the uncertainty of such piles, especially in boulder filled soil, that raises doubts in the minds of engineers as to utilization of the full designed carrying capacity of the pile.

If a direction-determining device can be developed that shows where solid piles go it will ease the minds of engineers concerned with difficult foundations and will result in substantial economies. Here is a challenge to foundation men and gadget developers. If an electronic device that could be attached to the pile near its tip is used, it would have to be small and expendable as recovery appears to be impractical.

Non-defense construction policy

A POLICY that will call for closer scrutiny of all types of non-defense construction during the current emergency is beginning to take shape in the Office of Defense Mobilization. Director Charles E. Wilson, in a letter to Governor Dewey of New York—made public Feb. 5 by the Governor—sets it forth in greater detail than any earlier statement. "The demand for steel products for the defense program," Mr. Wilson said, "will be very heavy during the last half of 1951 and during 1952. Increased steel production will ease this situation in 1953, assuming that our program is still directed toward defense.

"Therefore, if we are to meet immediate defense demands, we must control the use of steel for other than the most important projects during late 1951 and 1952. While the extent and type of restrictive orders have not been developed in detail, I must advise you that very little steel can be expected for new highway work other than access roads to new defense projects.

"Thus, throughways, parkways and similar developments, even though helpful to civil defense, must wait."

Mr. Wilson went on to say that new building construction will find it difficult to get steel, although every effort will be made to support hospital and school construction. Defense housing projects will also get preference.

Mr. Wilson's statement makes it clear that projects requiring two, three or four years to complete are not going to get his approval just because some government official says that they are essential to the defense program. Many of the power, flood-control and irrigation projects now in the federal budget program appear to fall into that class along with the New York State Thruway, which is so close to Governor Dewey's heart, and the St. Lawrence power and ship canal project, which President Truman has again asked Congress to authorize.

No matter how important any one of these undertakings may appear to be to a long-range program, all will have to be put back on the shelf until late in 1952 or even until 1953.

More highway maintenance

MOBILIZATION DIRECTOR WILSON'S letter to Governor Dewey of New York telling him that steel for the state's great thruway project can't be expected much before 1953 laid special emphasis on the greater amount of highway maintenance that will be needed as a result of restrictions on all construction not of immediate urgency in the defense program. Highway maintenance under such circumstance "becomes of increasing importance," Mr. Wilson said, "and every effort will be made to provide materials for this purpose."

Expenditures for highway maintenance have risen steadily since the curtailment of new construction at the start of World War II. They amounted to $1.3 billion during 1949, the latest year for which complete figures are available, according to a report given by H. A. Radzikowski, chief of the maintenance branch of the Bureau of Public Roads at the recent Highway Research Board meeting. That was 38% of the total revenues for highway purposes and compares with an average of only 24% for highway maintenance during the 1935-39 period.

Even though some work on New York's thruway and like projects that cannot be completed within two or three years must be shelved temporarily, it does not appear probable that replacement of existing highways will have to be as completely curtailed at this time as was done at the outbreak of World War II. The amount of steel going into highways is not large and few other materials used in such work are in short supply. Lack of manpower could, however, slow up road work. It is too early yet to predict what the manpower situation will be by the time road construction should be getting into full swing this spring.

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ENGINEERING NEWS-RECORD

FEBRUARY 22, 1951 VOL. 146 NO. 8

More controls seen likely as mobilization gears up

Observer sees 2-3 year job for industry in building muscle for defense effort—Industrial, public construction face controls to give NPA picture of where materials are going

Vincent B. Smith
Washington Staff

Construction is gradually getting into its defense harness. Controls and priorities already applied show plainly the shape of the preparedness gear that construction will soon be wearing. By mid-summer, the building business will be fully harnessed for the long haul up the defense road.

Looked at overall, the hauling job won't be too bad. Some builders will have to steer their organizations into new lines or get along on short rations. But the fellows who bid the heavy, engineered construction jobs will have a chance to latch onto all the work their crews can handle.

That is the picture for 24 to 36 months ahead. By that time—barring total mobilization—the nation will have pretty well caught up on its muscle-building program. Thereafter, it will keep the muscles in shape, but it won't be adding more in any big way until some warning shots are heard.

With the relaxing of controls hopefully envisioned for late '53 or early '54, construction could swing back into something like its normal peacetime groove. Ample funds generated meanwhile by defense spending should then fuel the start of many postponed projects.

• **Picture so far**—To date, construction has had the cinches tightened on housing, amusement construction and commercial building. During the same six months, it has felt the speed-up spurs of DO priority ratings for projects of the armed services, the Atomic Energy Commission, the National Advisory Committee for Aeronautics and the Coast Guard. Severe end-use limitations on copper and aluminum—particularly copper—have clouded the outlook for construction, starting this spring. But promised revisions lighten the cloud a little.

Meanwhile, the military draft on the construction equipment market—running to $700 million in orders placed during the fiscal year ending June 30—has posed another problem for contractors. That drag will go on for two years at least.

Even under existing DO delegations, the AEC can put the tab on construction equipment for its own account. You can be sure the AEC is not going to let its big, top-urgency projects suffer through lack of new construction machines. With the added AEC demand, there will be a minimum of new equipment for essential civilian jobs.

• **Whither Now?**—What comes next in construction controls? This week the National Production Authority expected to issue another extension of DO ratings to maintenance, repair and operation of the nation's industrial plant, buildings, dwellings and transport system. As before, the rating, would be served on the supplier by the man placing the MRO order—accompanied by proper certification, and signed by the purchaser.

MRO orders will apply to more than $7 billion of annual construction expenditure. Some $3 billion to $4 billion of that sum represents materials, products and equipment that will be covered directly by DO ratings. The rest of the money goes to labor. MRO orders will put another heavy bite on suppliers' stocks of construction materials.

Industrial construction essential to defense will be the next branch of building to get the benefit of DO ratings. Many government people had expected industrial building to get its DO extension ahead of MRO's. Priority ratings for industrial construction—especially for plants to make defense items—will probably come next. The pressure for them is heavy.

• **Holding the line**—NPA has struggled valiantly to hold to single-band priorities. At present, all DO orders have exactly the same rating. One does not enjoy higher priority than another, although a telephone call by the contracting officer can often speed up service on an urgent item.

When priorities go into multiple bands—like the double-A and triple-A ratings of the last war—they lose their effectiveness. The fellow with a second- or third-order priority has to wait in line. NPA wants to postpone that mess as long as possible.

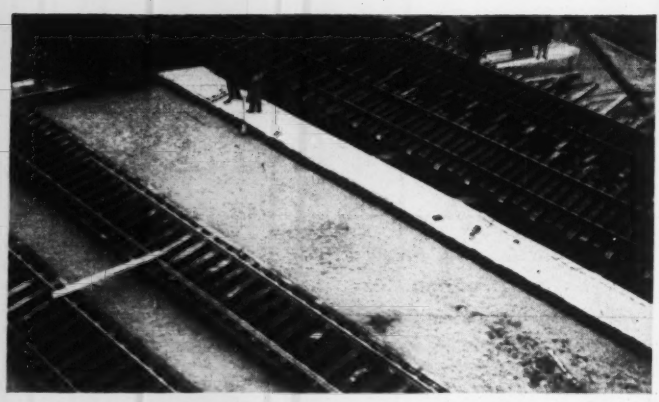
But when industrial construction comes under DO's something will have to give. The single-band system will be near the breaking point. At about that time—or soon after—you may expect to see multiple-band priorities for construction. Top rating will go to defense construction, including industrial—with perhaps a second rating for hospitals and a third for schools and other community facilities.

Reasons for the controls are not hard to find. Even with curtailment now in effect, construction expenditures this year are expected to run $24 billion—$3 billion under 1951.

DEPARTMENT OF COMMERCE REGIONS

Region	Address	Area Covered
I	1800 Customhouse Boston 9, Massachusetts	Conn., Maine, Mass., N. Hampshire, Rhode I., Vermont
II	42 Broadway New York 4, New York	New York New Jersey
III	Jefferson Building 1015 Chestnut St., Philadelphia 6, Pa.	Delaware and Pennsylvania
IV	Room 2, Mezzanine 801 East Broad Street Richmond 19, Virginia	Maryland, North Carolina West Virginia and Virginia
V	418 Atlanta National Bldg. 50 Whitehall Street, S.W. Atlanta 3, Georgia	Alabama, Florida, Georgia, Mississippi, South Carolina and Tennessee
VI	410 Union Commerce Bldg. 925 Euclid Avenue Cleveland 14, Ohio	Kentucky, Ohio and Michigan
VII	1150 McCormick Bldg. 332 South Michigan Ave. Chicago 4, Illinois	Illinois, Indiana and Wisconsin
VIII	338 Midland Bank Bldg. 401 Second Ave. South Minneapolis 1, Minn.	Minnesota, Montana, North Dakota, and South Dakota
IX	2400 Fidelity Bldg. 911 Walnut Street Kansas City 6, Mo.	Iowa, Kansas, Missouri and Nebraska
X	Room 1114 1114 Commerce Street Dallas 2, Texas	Arkansas, Louisiana, Oklahoma and Texas
XI	142 New Customhouse 19th and Stout Street Denver 2, Colorado	Colorado, New Mexico, Utah and Wyoming
XII	306 Customhouse 555 Battery Street San Francisco 11, Calif.	Arizona, California, Hawaii and Nevada
XIII	809 Federal Office Bldg. 909 First Avenue Seattle 4, Washington	Alaska, Idaho, Oregon and Washington
Washington, D.C.	Construction Controls Div. 801 E Street N.W. Washington, D.C.	Metropolitan Washington

WHERE TO GO—Heads of the 13 regional Department of Commerce offices listed above, will make decisions on applications for permits to erect commercial buildings up to $1,000,000 in value. District managers in Baltimore, Detroit, Los Angeles, Portland, Ore., and St. Louis have the same power. Licensing of costlier jobs will be handled by Washington head NPA headquarters.



PREFABRICATED—A 400-ton steel and concrete bridge under the Texas & Pacific Railway tracks in Fort Worth, Texas, was constructed adjacent to the structure being replaced—complete with tracks. Upon completion, the old tracks and a temporary supporting structure were lifted out and the new unit skidded into place on 175 pieces of two-inch pipe. Transfer of the 90-ft by 57-ft bridge was completed in one day. W. B. Hendricks, Fort Worth, is contractor. (Fort Worth Star-Telegram photo)

Board of APWA adopts honorary member category

The board of directors of the American Public Works Association, meeting in Detroit Feb. 10 and 11, inaugurated an honorary-member category of the organization.

Selected as the first representatives to achieve this distinction were: Frederic Bass, retired professor of sanitary engineering, University of Minnesota, and one-time executive director of the association; Donald C. Stone, first executive director and now on the staff of the U. S. Bureau of Budget; William J. Galligan, retired head of the Chicago bureau of refuse disposal; and Samuel A. Greeley, consulting engineer, Chicago.

Donald F. Herrick, executive director, reported that paid-up members now totaled 1,726, a gain of 142 since last year. For the first time, he said, the association was operating on a completely self-sustained basis; heretofore it had been the recipient of funds from the Spelman Foundation. Dues were voted to continue at $10 annually, the same as they have been since 1943.

U. S. Engineers surveying resources of upstate N. Y.

Col. Herman W. Schull, Jr., Buffalo district engineer of the U. S. Corps of Engineers, has launched a survey of upstate New York natural resources.

The study will include examination of power potential on the Genesee River, especially the Mt. Morris Dam which is now 75 percent complete.

Export of natural gas may be allowed by Canada

Possibility that export of natural gas will be permitted from Alberta, Canada, within the next few months is suggested by new developments.

The federal Board of Transport Commissioners, following Alberta's announcement that gas exports would not be allowed until further reserves were found, has adjourned hearings of applications by Westcoast Transmission Co., Alberta Natural Gas Co. Ltd., and Prairie Transmission Lines until April 5, and Frank McMahon, Westcoast president, says his company may be able to find sufficient wells in northern Alberta by that time to clear the way for final board hearing.

Meanwhile, American officials have presented a request on behalf of Defense Mobilization Director Charles E. Wilson that the Canadian government speed up the decision to export gas as being vital to the northwest and defense of the continent.

Premier Manning, in announcing the export ban recently, said such a request might change the picture.

In the Ottawa hearings, the Transport Board is preparing to streamline hearings on the route applications by limiting each company application to two routes, the chief effect being that Alberta Natural Gas, with four routes proposed, will have to cut its application in half.

In Alberta itself, the provincial government has taken action to speed up exploration by issuing new regulations covering the licensing of "gas only" rights on large blocks of Crown lands.

CIMA to help builders make needed subcontracts

The Construction Industry Manufacturers Association has set up a clearing house at its national headquarters in Chicago to help prime and sub contractors get in touch with each other quickly. The arrangement has been made in order to help the national defense effort.

Member organizations have been asked to list their facilities available for subcontracting work, if seeking subcontracts, and those seeking subcontractors are asked to specify their needs. Six categories of need are set up, and the CIMA will periodically announce to members facilities required or available for sub-contracting.

Seattle spends $150,000 to plan 3 major bridges

The Seattle City Council has appropriated $150,000 to prepare construction plans for several major bridges. Action follows warning from R. W. Finke, city engineer, that the city will need some $12,000,000 worth of bridges in the next few years if war conditions do not interfere.

Largest bridge at present proposed would be a replacement for the First Ave. S. structure over the Duwamish River. Cost: $3,500,000. The rest of the program would consist largely of overpasses at critical traffic junctions.

Also in the planning stage is the proposal of Homer Hadley, Seattle consulting engineer, for a multi-million-dollar bridge over the east and west waterways at the south end of the Seattle harbor to provide ready access to industrial Harbour Island and residential West Seattle. The bridge would be particularly desirable should Alki Point in West Seattle be chosen as terminus for a $40,000,000 crossing of Puget Sound.

Port Commission asks survey of waterfront

Ferris H. Fitch, chairman of the Port of Detroit Commission, has asked for $150,000 for a survey of the city's waterfront in anticipation of construction of the St. Lawrence Seaway.

Sale of three parcels of land owned by the city on the Detroit River has been blocked by the commission in anticipation of its waterfront plan. Between the Belle Isle Bridge and the River Rouge there are about 80 piers, wharves and docks, only three of which are available as public cargo terminals and none of which is controlled by the Port Commission or any public agency, it said.

Air pollution board closes gray iron foundry

In the first case of its kind, the operating permit of the Axelson Manufacturing Co., Los Angeles, a gray iron foundry, has been revoked by the County Air Pollution Control Hearing Board.

Meanwhile, 12 more gray iron foundries have been denied variances under which they had been operating pending installation or signed contracts for installation of anti-smog devices.

The hearing board merely stated that the density of emission from both of Axelson's cupolas was such that "its permit to operate was revoked." The company has filed a variance with the board, stating that it has contracted to build a new plant and that temporary equipment to control the emission would be immediately installed in the present plant. A hearing on the plea was set for Feb. 20.

The action came as the validity of Los Angeles' city ordinance against air pollution was held uncertain by three superior court judges. However, the state anti-smog law—under which the license was revoked, has been upheld.

The superior court had ruled only a week previously that the Ringlemann Chart method for computing density of smoke as provided in the state law is valid, and that lack of this test in the city ordinance leaves the validity of the Los Angeles anti-smog law in doubt.

The Ringlemann Chart test for smoke density has been in use by the U. S. Bureau of Mines for more than 50 years.

U. S. Steel to break ground March 1 on huge plant

U. S. Steel Co. plans to break ground March 1, 1951, for the new Fairless Works to be located on the Delaware River across from Trenton, N. J. Believed to be the largest single steel construction project on record, ceremonies will mark the first step in the construction of the $350,000,000 plant which will have an annual productive capacity of 1,800,000 net tons.

Trestle spans were 14 ft

In the description in ENR Feb. 15, p 25, of the trestle at Woodbridge, N. J., where the wreck of a Pennsylvania Railroad train occurred on Feb. 6, the last sentence ends in a phrase intended for the end of a previous paragraph.

The sentence now reads ". . . spans were about 14 ft out of their normal position." It should have read simply that ". . . spans were 14 ft."

MOPPING UP—Workers expedite matters on a traffic lane to clean up debris in the eastern end of the Queens-Midtown vehicular tunnel in New York, following a fire which burned a fuel oil truck. The driver stopped just inside the tunnel after the fire was discovered. Firemen and wrecking crews responded immediately, keeping tunnel damage to a minimum and halting traffic until the debris had been removed. The driver was unhurt. Blackened walls and fallen facing tiles indicate extent of the damage. (Wide World photo)

Southwest in grip of severe drought

Although most of the western states are experiencing a bumper water year, the Southwest still is suffering from a severe drought. This condition obtains from the coastal region in southern California inland through Arizona, southern Utah, New Mexico and into western Texas.

U. S. Weather Bureau water supply forecasts for the 1950-51 water year, issued as of Feb. 1, show how crucial the situation is this year. Inflow to Elephant Butte reservoir on the Rio Grande in New Mexico is predicted at 42% of normal. Runoff prediction for the Pecos River system in New Mexico varies from 43 to 72% of normal. Streams in the Central Arizona area are predicted at 26 to 46% of normal.

Seriousness of the southern California drought is indicated by rainfall figures. There are no Weather Bureau data for the intermittent streams in this area. Rainfall to date this year is 4.52 in., as compared with a normal to date of 9.22 in.

This threatens to become the seventh year in a row for below-normal rainfall in Los Angeles. Metropolitan Water District of Southern California figures show no rainfall at, or above, average in Los Angeles since 1943-44. A total of two years rainfall has been lost in what is termed the worst drought on record for that area.

San Diego's city reservoirs are at 18% of 400,000 acre-ft capacity, with rainfall to date less than half of normal. However, with 65 mgd coming from aqueducts connecting with the Metropolitan Water District of Southern California supply, this year's domestic supply is not critical.

But with military personnel and aircraft plant activity increasing, another rain-short year could be serious and, as a consequence, support for a second conduit to the aqueduct is favored.

The irrigation picture is less favorable. Most farmers need more water. Two irrigation districts supplied by Lake Hinshaw have drawn the reservoir down to 6% of capacity. The bright spots are those districts that recently have drilled wells and found satisfactory underground supplies.

Arizona reports a critical situation. In the central part of the state, the Salt River Valley water users have storage capacity of 2,001,715 acre-ft, but net storage on Feb. 15 was only 218,144 acre-ft, as compared to 573,505 acre-ft at this time last year.

Members' allotment will be cut. State's major watersheds precipitation was 50% of last year and 35% of normal. High temperature and wind after brief storms didn't help. Forecast for domestic supply for summer is critical.

Farmers in the Rio Grande valley in New Mexico have been urged not to plant new crops—but to drill wells. El Vado Reservoir is at a record low of 26,000 acre-ft, against 198,000 acre-ft capacity. Season's rainfall is 4.1 in. compared to 8.06 normal.

Governor fights Hell's Canyon Dam

Idaho's Gov. Len Jordan says that he believes two other power projects would be of more benefit to Idaho than the proposed Hell's Canyon Dam on the Snake River which the Bureau of Reclamation hopes to build.

The governor's statement came after a group of water users met in his office with C. Girard Davidson, former assistant secretary of the interior.

Jordan said that both the Palisades Dam in eastern Idaho and the proposed Scriver Creek project in southwestern Idaho would provide direct benefits to the state.

A spokesman for the group of water users said the Palisades Dam would be "invaluable as a multi-purpose dam and for supplemental irrigation water." He suggested that construction of the Scriver Creek power plant near Smiths Ferry on the Payette River should be considered by the government if it needs power quickly. He said this plant could be generating power in 30 months and that the Palisades project could be producing power about two years before Hell's Canyon could be put on the line.

Governor Jordan also pointed out that private development of Hell's Canyon power would provide considerable added tax revenue to the state, about $3,000,000. The Idaho Power Co. has said it would be interested in such a development if Hell's Canyon isn't built by the federal government.

Davidson was in Boise to confer with water users, the governor and the Bureau of Reclamation officials in preparation for making special report to the Secretary of the Interior on northwest power development.

State plans million kw hydro electric expansion

Oscar Chapman, secretary of the Department of the Interior has set a 1,000,000 kilowatt goal as a desired hydroelectric power increase for Washington state over the next three years, power to be supplied by private companies and local governmental agencies. This is in addition to the Seattle City Light's Skagit development, and federal projects along the Columbia River and its tributaries.

Two hydroelectric developments have been planned that will add 250,000 kw, and tentative plans call for the construction of three steam-generating plants in western Washington which as yet have no sponsors. These latter are to be equipped to develop 100,000 kw each during winter months.

More positive developments: The Washington Water Power Co.'s Cabinet Gorge development in northern Idaho; the Idaho Power Co.'s $18,500,000 Snake River project near Mountain Home, Ida.; and the Chelan County Public Utility District projects to add 150,000 kilowatts at the Rock Island Dam of Puget Sound Power, and a 100,000 kw development near Woodland, Wash by the Pacific Power and Light Co. which has headquarters at Portland, Ore.

Last legal obstacle to the Washington Water Power project has been removed through Montana's Governor John W. Bonner's signature permitting storage of water in his state for use by $40,000,000 Cabinet Gorge plant. Contracts for rock excavation for the dam and two diversion tunnels will be awarded shortly.

Federal power action frees Texas projects

A finding by the Federal Power Commission that three proposed dams and power plants on the Brazos River in Texas do not come within its jurisdiction has cleared the way for an early start on those projects. The three are the Turkey Creek Dam, with an initial power installation of 22,000 kw; Inspiration Point Dam, 25,875 kw; and De Cordova Bend Dam, 45,000 kw. All are to be built by the Brazos River Conservation & Reclamation District, at an estimated cost of $30,000,000.

These dams are part of a comprehensive plan for development of the Brazos River, of which Possum Kingdom Dam (ENR June 8, 1939, p 71) was the first to be built.

Designs for two more power dams between Whitney and Possum Kingdom are under way, as is the design of some proposed storage dams above Possum Kingdom Dam.

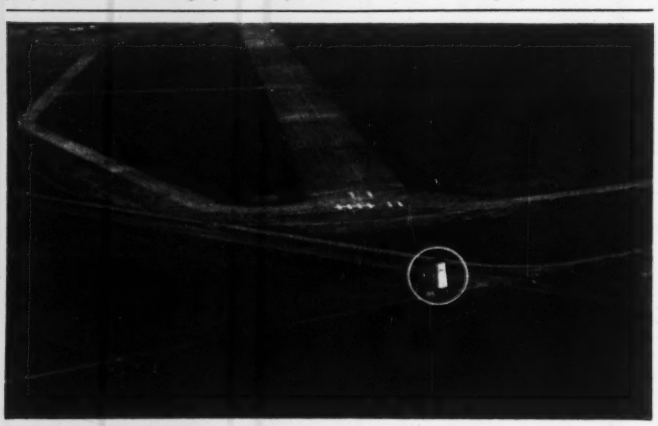
Had the Federal Power Commission ruled that federal licenses were required for these new power dams, work on them would have been postponed indefinitely because of the clause in FPC licenses permitting the federal government to take over licensed projects at the end of 50 years. That would have made possible taking over of property of the state of Texas.

Design for the three dams now to be built were made by the Ambursen Engineering Corp., New York.

State action under way to clear power project

New England Power Company has taken steps to introduce a bill to the New Hampshire legislature permitting the State Public Service Commission to approve sale of Connecticut River Power Company property so that construction of a $45,000,000 hydroelectric plant near Littleton, N. H., can begin. The prospective plant would provide 150,000,000 kilowatts of additional power.

The dam is to be constructed at Upper Fifteen-Mile Falls near Littleton. Its construction comes just after completion of a new $16,000,000 hydroelectric plant at Wilder, Vt., for the Connecticut Power Company.



SPITE OR RIGHT?—Marshall M. Pipes, Fresno, Calif., rancher recently moved a 40-ft tankhouse onto his property bordering the Fresno Air Terminal, but directly in line with the main runway. Instrument and bad weather landings were halted until Pipes moved the obstruction under court order. Rancher claims that low-flying planes have ruined plans for subdividing for home construction purposes. (Bee photo)

CONSTRUCTION BUSINESS

Cement stocks low despite record year

Cement producers turned out 226 million bbl of Portland cement in 1950 and shipped 227.8 million bbl as reported by the Bureau of Mines. Both are new all time high records. Production increased 8% over its previous record in 1949 and shipments topped their 1949 volume by 10%.

Portland cement shipments fell off sharply in December, 37% below their November rate to 12,477,000 bbl. But production was held up to 19,116,000 bbl, only 5% below the November output.

Stocks at the start of 1951 at 13 million bbl are 11.5% lower than they were at the start of 1950. But stocks built up during December from 6.38 million bbl at the end of November and from an October low of 5.958 million bbl.

• Stocks low in most areas: In the Ohio, Michigan, Illinois, Tennessee and Iowa producing districts, cement stocks are higher than they were a year ago. Elsewhere they are lower.

Down 34% in Alabama, 30-31% in Kansas, California and the Rocky Mountain region, down 29% in eastern Pennsylvania and Maryland, 25% in Oregon and Washington, 22% in New York and Maine, the average for the country is down 11.3%.

Only in the eastern Pennsylvania and Maryland and in the Michigan producing districts did stocks top 1 million bbl at the start of 1951.

How these stocks were distributed is shown in the accompanying table.

Stocks of finished portland cement, (Thousands of barrels)

Producing District	Dec. 31 1950	% chg fm '49
E. Pa. & Md.	1,837	−29
N. Y. & Maine	868	−22
Ohio	853	+13
W. Pa., & W. Va.	933	− 3
Michigan	1,317	+ 9
Illinois	695	+10
Ind., Ky., & Wis.	937	− 7
Alabama	399	−34
Tennessee	318	+ 7
Va., Ga., Fla., La., & So. Car.	389	+ 3
Iowa	837	+28
E. Mo., Minn., & So. Dak.	911	+ 2
Kansas	313	−31
W. Mo., Neb., Okla., & Ark.	343	−13
Texas	504	−21
Colo., Ariz., Wyo., Mont., Utah, & Idaho	345	−30
California	726	−31
Oregon & Washington	428	−25
Puerto Rico	71	+72
Total	13,021	−11

Lumber orders, shipments continue to top output

New orders for lumber were 5.9% above production for the week ending Feb. 3, and shipments were 16.2% above according to reports by 431 mills to the National Lumber Manufacturer's Assn.

For the year to date, shipments have averaged 6.8% above output and new orders have run 23.5% above.

For the week, production topped its 1950 counterpart by 35.1%, shipments were 9.8% higher and new orders 13.4% below the 1950 week.

This continued pressure on lumber supplies pushed lumber prices up 3 to 5% before the price freeze went into effect.

No study has been made as yet in Washington of the lumber price situation. Pending such a study, the ESA-OPA directive remains in force that no logger, lumbermen, wholesaler or retailer may charge a price higher than his highest during the 38-day period, Dec. 19-Jan. 25.

Prices at the end of January were around 8% below their October, 1950 record high. But they were 27% above their values a year before.

• Increased output urged: Lumber men through their 15-man primary forest products committee are recommending to National Production Authority that it take immediate steps to increase lumber supplies. This would require: increasing the supply of logs, construction of access roads, help in obtaining essential equipment, particularly tractors.

• Sales resumed: Halted January 29 while price ceilings were being set, sales of national forest timber are again permitted at prices not to exceed the highest stumpage rate paid in each region for each species-product class during the base period of Dec. 19 to Jan. 25 incl.

This means that the ceiling for sawlogs, posts, pulpwood and all other national forest products will be set in each region at the highest price in effect during the base period.

Wholesale prices move up

Building materials climbed to 226.5 for the week of Feb. 6, from 225.4 the previous week, as reported by the wholesale price index by the Bureau of Labor Statistics. The base for this index is 1926 = 100. This is a 1.3% rise since the week of Jan. 2. It compares with an increase of 3% in the same period for all commodities. The all commodities index is up to 182.2 for Feb. 6 from 180.9 the previous week.

New angle on municipal financing

St. Louis's alert financial officers propose to sell some $41.7 million worth of municipal improvement bonds even though the work they are to finance is not in immediate need of the money. The surplus cash from the sale would be salted down in Federal government securities that pay 2.25% to 2.5% interest. The city thinks it can sell its bonds at 1.67%, so "it wouldn't lose any money by selling the entire $41,727,000 issue at an early date."

Construction to be financed by this bond issue includes underground communications system for fire and police, also a central administration building for that system, $2.2 million; parks and playgrounds, $3.6 million; streets, $7.8 million; sewers, $8 million; bridges $1.8 million; hospitals $2.3 million.

Cost rise measured

Building cost index measures of the extent of the 4th quarter rise in construction costs include:

• Turner: for February, 1951 the Turner building cost index shot up to 470 from the previous 452 in October, 4% in four months. This new high is 18% above the 1949 dip when the Turner index levelled off at 407 for nine months. These values are based on 1913 = 100.

• Fuller: at 398 the January, 1951, Fuller building cost index is up 3.6% in the three months following October. It is up 7% since January, 1950. These values are based on 1913 = 100.

Apply for slum relief aid

More than 200 cities and counties sought slum clearance and redevelopment funds under Title I of the Housing Act of 1949 in 1950, during its first year of operation, according to the Housing and Home Finance Agency.

At the end of 1950, 222 communities in 31 states, the District of Columbia, Hawaii, Puerto Rico and the Virgin Islands had capital grant reservations outstanding for $172,896,023.

Housing starts stay high

In January housing starts are 87,000 as estimated by the Bureau of Labor Statistics. This is 10.5% higher than starts in January, 1950, but it is 5% below December, 1950 starts.

A revision downward of October estimates to 102,500 also reduces the estimate for all of 1950 to 1,392,100, still an all time high record.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 66, went to press.)

Power Plant—United Engineers & Constructors, Inc., Philadelphia, Pa., will construct $20,000,000 second unit of Meramec Power Plant, in St. Louis County, Mo., for the Union Electric Co. of Missouri, St. Louis. The same contractor has work under way on the $25,000,000 first unit.

Gas Pipe Line—Canadian Parliament is considering incorporation of Trans Canada Pipe Lines Co., Ltd., which wishes to construct a 2,200-mile, $250,000,000 gas pipe line from Drumheller, Alta. to Montreal, Que.

Aluminum Reduction Plant—Kaiser Aluminum & Chemical Corp., Los Angeles, Calif., has selected site for $75,000,000 aluminum reduction plant and power facilities, near New Orleans, La. Plant will have 200,000,000 lb. annual capacity.

Housing—St. Louis Housing Authority, St. Louis, Mo., plans two housing projects in St. Louis, to cost about $34,000,000. George Hellmuth & Associates, St. Louis, are architects.

Power Plant—The City of Seattle, Wash., has extended bids to March 7, for constructing power plant, tunnel and appurtenances, at Ross Dam. Estimated cost is $10,000,000. E. R. Hoffman is city light plant superintendent.

Aluminum Reduction Plant—J. Gordon Trumbull, Inc., Cleveland engineer, has been selected to engineer and supervise erection of $80,000,000 aluminum reduction plant, at Corpus Christi, Tex., for the Reynolds Metals Co., Louisville, Ky.

Bridge—U. S. Engineers, Omaha, Neb., opened bids Feb. 14, for a railroad bridge over Missouri River, at Fort Randall Dam Project, near Chamberlain, S. D. Guy H. James Construction Co. was low at $2,787,665 on substructure and American Bridge Co., Minneapolis, Minn., was low at $2,817,612 on superstructure.

Bauxite Reduction Plant—Harvey Machine Co., Los Angeles, Calif., plans a $15,000,000 bauxite reduction plant at Longview, Wash.

Airforce Base—Department of the Air Force—Wash., D. C. plans $8,000,000 improvements at Gulfport Airforce Base, Gulfport, Miss. J. B. Converse & Co., Mobile, Ala. are consulting engineers. Harry Inge Johnstone, Mobile, is architect.

State Buildings—State of Texas, Austin, plans State Courts Building and State Office Building at Austin. Cost will be about $6,000,000.

Housing—H. L. Coble Construction Co., Greensboro, N. C., has been awarded contract at $3,037,417 for constructing housing project at Greensboro, N. C., by the Housing Authority of Greensboro. C. C. Hartman & Son, Greensboro, are architects. Southern Mapping Co. and Watson & Hart, Greensboro, are engineers.

Hydraulic Turbines—U. S. Engineers, Seattle, Wash., awarded contract for three hydraulic turbines for Albeni Falls Dam, Priest River, Idaho, to Baldwin-Lima-Hamilton Corp., Philadelphia, Pa. at $3,009,750.

Plant—Sundstrand Machine Tool Corp., Rockford, Ill., plans new plant and additions at Rockford to cost about $3,377,780.

Manganese Development—Manganese, Inc., announced plans for a $2,000,000 manganese development north of Henderson, Nev. Contract has been awarded to McNeil Construction Co., Los Angeles, Calif. The Southwest Engineering Co., Los Angeles, is consulting engineer.

Prison Housing—Department of Correction, State of Massachusetts, Boston, plans prison housing at Norfolk, Mass. to cost about $6,000,000. Desmond & Lord, Boston, are architects. R. D. Kimball Co., Boston, is engineer. Plans have been revised to increase size of project.

Water Pipe Line—P. & J. Artukovitch, Los Angeles, Calif., has been awarded $2,159,378 contract to build concrete lined and coated steel pipe line in Los Angeles, by the Los Angeles Department of Water & Power.

Plants—General Electric Co., prime contractor for the Atomic Energy Commission, awarded contract to construct eight hot semiworks at Hanford Works, Richland, Wash., to L. H. Hoffman, Portland, Ore., at $2,473,000.

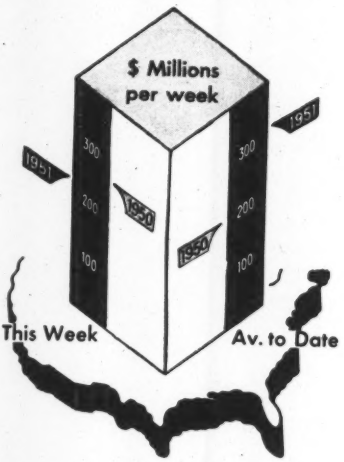
Housing—San Antonio Housing Authority, San Antonio, Tex., has increased to 500 units the Latin American Housing project proposed for San Antonio. Estimated cost is $3,650,000. Ford & Rogers, Sam Zisman and Weidner & Walther, San Antonio, are architects.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost.	Feb. '51	536.74	258.01	112.32
Bldg. Cost...	Feb. '51	396.95	214.58	112.84
Volume	Jan. '51	665	270	192

Activity This Week
As reported to ENR
(in millions of dollars)



Amount of contracts let

	Week of Feb. 22 '51	Cumulative 8 wks. 1951	1950	% chge
Federal	$22.0	$355.7	$338.3	+5
State & Mun.	61.2	567.1	422.3	+34
Total Public.	$83.2	$922.7	$761.6	+21
Total Private	140.6	1,615.2	840.1	+92
U. S. Total.	$223.8	$2,537.9	$1,601.7	+58

Contracts by type of work

	This Week	Cumulative 8 wks. 1951	1950	% chge
Waterworks .	$9.5	$30.1	$50.2	−40
Sewerage ...	5.8	52.9	34.8	+52
Bridges	2.8	16.4	41.3	+12
Highways ...	11.9	132.3	122.7	+8
Earthwork, Waterways .	2.8	10.7	18.8	−17
Buildings:				
Public	25.1	418.5	372.2	+12
Housg., pub.	8.1	133.8	28.8	+365
Housg., priv.	63.5	361.7	498.6	−27
Commercial.	4.7	118.3	143.1	−17
Industrial .	69.7	1,026.5	143.8	+614
Unclassified .	19.9	176.8	117.3	+51

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works $60,000; industrial buildings, $82,000; other buildings, $200,000.

New capital for construction

	Cumulative 8 wks. 1951	1950	% chge
Corporate Securities	$397.4	$335.4	+18
Fed. loans, Priv. Constr.	73.4	0	0
State and Mun.:			
Excl. housing ...	274.1	239.3	+15
Housing	148.3	150.7	−2
Fed. Aid, nonfed. constr.	0	0	0
Total Non-Federal.	$893.2	$725.4	+23
FEDERAL	2,602.5	0	0
Total Capital	$3,495.7	$725.4	+382

NAHB hits buiding codes as housing cost factor

Revision of wasteful building codes can save up to $1,000 on a three-bedroom house, the National Association of Home Builders says.

Ten changes to bring codes up to current building practices are outlined by the association:

1. Getting rid of excessive load requirements on floors and roofs;
2. Excessive wind loads required in low dwellings;
3. Snow loads that are generally excessive, (sometimes based on guesses);
4. Excessive masonry in chimney requirements;
5. Walls with a fire resistance factor of ¾ hours, (deemed excessive for single family housing);
6. Overstated foundation footing requirements, for thickness and depth;
7. Bridging on double wood joist floors;
8. Wall or roof sheathing equivalent to ¾ in wood boards, an excessive requirement;
9. The compulsory basement;
10. Variance with national standards on allowable stresses of lumber, steel, concrete and masonry.

Plumbing codes requiring unnecessary drain pipes and other equipment also came in for attack by the NAHB, along with featherbedding, and labor restrictions on the use of labor saving devices, such as spray painting.

Arizona builders move to stabilize masonry wages

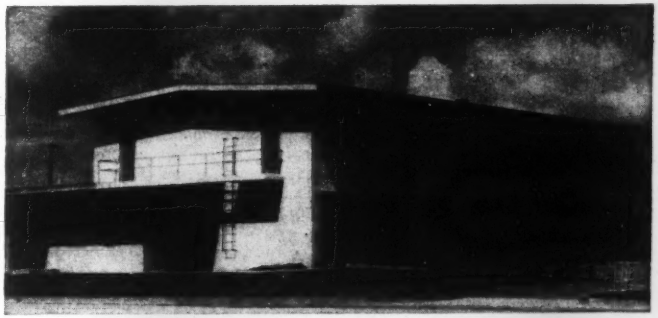
Arizona masonry contractors have stopped paying premium wages for bricklayers. The newly-formed Arizona Masonry Contractors Assn. has agreed to pay no more than the scale of $24 a day. Contractors had been paying as high as $32 for an eight-hour shift.

The association stipulated that contractors paying above the scale for straight time would be subject to a $250 fine.

The action was taken to ease a critical situation in the labor-short area. Contractors had complained of labor raids and of difficulty in establishing firm bids because of the fluctuating scale.

Jack Hamby, Phoenix, is president of the association. Officers emphasized that the action taken was not designed to drive down wages, but to stabilize the masonry industry.

The door was left open for collective bargaining appeals that bricklayer groups might bring.



GUAM POLICE STATION—The Navy has built this handsome reinforced concrete police headquarters in the town of Agana, Guam. Adapted to the tropics, the building has jalousies rather than glass windows; all metal trim on ground floor is aluminum. Construction features precast roof panels and precast second-floor panels. Contractor on the job was Brown-Pacific-Maxon, a United States combination. Capt. E. L. Hansen, CEC, USN, was the officer in charge of construction.

NYC plans mass housing in nine areas

New York's City Housing Authority will acquire 159 acres of slum property assessed at more than $32,000,000 for nine public housing projects, according to Philip J. Cruise, chairman.

The Board of Estimate has had a request from the authority to authorize condemnation of the sites of seven projects. This granted, the action will constitute the largest mass acquisition of property ever undertaken by the Authority at one time. A request for the condemnation of the remaining two sites will be submitted in a month or two.

Architectural plans for all of the projects involved are under way.

In Manhattan, Carver Houses are to be built under loan contract with the State Division of Housing on 13.42 acres between East 99th and East 106th Streets, Madison and Park Avenues at an assessed value of $4,885,500. The new project will provide 1,200 homes.

Baruch Houses are built under loan contract with the Public Housing Administration on 26.76 acres of land on the lower east side, from F. D. Roosevelt Drive to Columbia Street, between Delancey and East Houston, excluding Lavenburg Houses on Houston, at an assessed value of $6,728,500. The project will provide 1,900 homes.

The St. Nicholas Houses are to be built with federal money on 9.27 acres of the 16.38 acre site to be acquired in Harlem at an assessed value of $2,123,000, the total project to provide 1,425 homes.

Other projects will include the Forest Houses in the Bronx, the Van Dyke and Brevoort Houses in Brooklyn, extension to the South Jamaica, and two sites yet to be submitted for approval, Jefferson Houses and Washington Houses in Manhattan.

Much public building in Nebraska "frozen"

As a defense measure, Governor Val Peterson of Nebraska has signed a bill freezing all public building at state institutions, with the exception of two proposed laboratories at the state college of agriculture.

The new law stops expenditures from the Nebraska building fund, with these exceptions: Projects commenced before Jan. 1 last; final payments on completed structures; funds to buy land for state institutions; the two laboratories mentioned; $35,000 for the board of control for architectural services; twenty-five percent of the annual receipts of the building fund for repairing existing buildings; and any project deemed necessary by a board consisting of the governor, secretary of state, auditor, treasurer and attorney general.

Building materials tax proposed in Texas

A building materials tax is under consideration in the Texas legislature.

An omnibus bill by Rep. Dena A. Tufares of Wichita Falls would levy 25¢ per thousand board feet on lumber, 50¢ a cubic yard on sand, gravel and crushed limestone, $1 a ton on Fuller's earth, crushed marble, and salt, and $2 a ton on fire clay.

Cleveland plans $150 million freeway

Favorable state reaction to a $150 million mortgage bond proposal for the Greater Cleveland freeway program was reported by Acting Mayor Lee C. Howley last week.

Legislation authorizing the issuance of such bonds has to be approved first by the state legislature. The bonds would pledge the entire freeway funds of the city, county, state and federal governments appropriated for the Cleveland area each year as funds to support the proposed loans. Important to the legislative success of the issue is the attitude of the state highway department, which is "friendly".

• **State approval needed**—Granted legislative approval, completion of all construction work on the program over the next three years is contemplated. Cleveland officials point out that a similar plan is under consideration in Detroit, that city planning to issue $100 million in mortgage revenue bonds in order to complete a freeway system within its metropolitan area.

In Cleveland $6,000,000 annually has been the average expenditure from city, state, county and federal funds for freeways. This is measured against a program which calls for a $60,000,000 inner belt; $6,000,000 shoreway; and completion of a $20,000,000 Willow freeway, as well as a $20,000,000 Newburgh freeway, and the $20,000,000 Berea airport freeway. Also included in the program would be completion of the Lakeland freeway at $10,000,000, the Rocky River Bridge, $5,000,000, and completion of Chester Avenue at $9,000,000.

• **Cost estimates**—In view of pressing traffic problems and city needs, a $6,000,000 annual expenditure for the program would postpone much of the needed work, Howley says. Finance Director Hanrahan and George Vine, secretary of the sinking fund commission, estimated annual money needs under the proposed bond issue at $7,000,000 annually, a figure $1,000,000 above recent average annual expenditures.

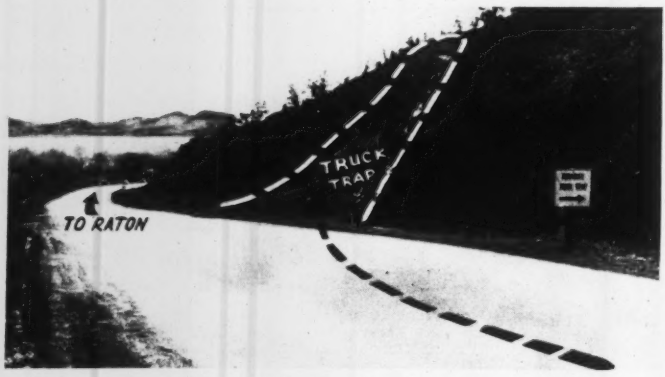
Highway commission sets road goal of $79 million

The Wisconsin highway commission plans to spend $79,000,000 on the state road system this year, according to William P. Ward, commission secretary.

Ward says the proposed expenditures are as follows: state trunk highway construction, $34,000,000; maintenance, marking, signs, and snow removal, $14,000,000; construction of the state trunk system, $2,000,000; aids to local governments, $26,400,000; and miscellaneous expenditures, $3,300,000.

The money will come from the following sources: State highway revenues, $56,000,000; federal aid, $12,000,000; local funds $2,000,000; highway fund reserve, $9,000,000.

Ward said the dip into highway reserves would leave about a $41,000,000 balance.



LAST CHANCE—New Mexico State Highway Department built this trap for runaway trucks one mile from the city of Raton, which lies at the foot of the hill. Trap is a short, steep incline off Raton Pass Highway. Truckers call it a good idea, theoretically, but point out that runaway vehicles reach speeds up to 100 mph—that it might be impossible to guide heavy truck onto incline (Denver Post photo)

N Y lawmakers recommend truck weight mileage tax

Rates to be applied to trucks under a proposed weight-mileage tax in New York State have been agreed upon by the Joint Legislative Committee on Highway and Canal Use.

The levy applying to trucks and intercity buses with a gross weight of over 16,000 lbs would range from 5 mills to 24 mills per mile. Farmer-owned vehicles (used in farm work), common carriers operating within a municipality, school buses, tow trucks, government vehicles and rural mail delivery trucks would be exempt.

Manufacturer's rated capacity of the truck would set the rate—as a fixed factor, applicable regardless of the weight of the load being transported at any particular time.

For example, trucks with declared gross weights from 16,001 lbs to 18,000 lbs would pay 5 mills per mile; those weighing from 26,001 lbs to 28,000 lbs, 9.5 mills; from 36,001 lbs to 38,000 lbs, 12 mills; from 46,001 lbs to 48,000 lbs, 16 mills; from 56,001 lbs to 58,000 lbs, 21 mills. The top rate would be 24 mills.

Legislation authorizing the weight-mileage tax and revised (upward) truck registration fees is slated to be introduced this month.

State official declares 3,300 mi of road obsolete

Charles P. Casey, director of the Illinois Department of Public Works and Buildings, has declared that of the state's 12,000-mile primary highway system, 3,300 miles are obsolete or worn out.

Casey told the 66th annual meeting of the Illinois Society of Professional Engineers that the primary highway system will have 7,200 miles of obsolete roadway over the next eight years if something isn't done to correct the situation. These roads carry three-fourths of the state's motorized traffic outside the city, he said.

Alcan lets contract on road to $500 million plant

Aluminum Company of Canada Limited has placed contract for construction of a ten-mile road into the site. The award went to Morrison, Knudsen of Canada Limited, Toronto. The road will extend from Kemano Bay to the site of the proposed $500,000,000 power plant of the company on the Kemano River.

Award of the road project is considered a go-ahead signal on the whole project. However the contract does bear cancellation clauses.

First PHS report due—14 others ahead

The first of 15 river basin water pollution reports prepared by the U. S. Public Health Service will be released early in March. The reports are a collection and analysis of preliminary data on the needs for waste treatment facilities in the major drainage basins of the country.

The remaining 14 reports and a national summary will be published in the months following.

The first report, dealing with the Tennessee Valley will claim that about 135 new or improved municipal treatment plants are needed in that river basin, 53 in Tennessee alone. The report will also show that 93 industrial establishments need to build or improve their waste treatment facilities.

Dr. Leonard A. Scheele, surgeon general of USPHS, says that during the last 10 years organic pollution has increased 35% in the Tennessee Valley and that most of the existing waste treatment plants are overloaded. Only 8% of domestic sewage and 10% of industrial wastes is treated now.

The public health service estimates that in the Tennessee River Basin some $47 to $57 million should be spent for new construction over the next ten years. Over the entire nation construction of 6,500 municipal sewage plants and 3,400 industrial plants is needed, says the PHS. Cost is estimated at $8 billion.

An "out" which may provide help for many industrial establishments holding defense contracts and which are being pressed by the state health departments to build waste water treatment plants has been suggested by Dr. Scheele. He says business firms can get certification of treatment facilities as essential to national defense and get accelerated amortization under section 216 of the Revenue Act of 1950.

He also thinks the present defense mobilization program may help build more pollution abatement works (in which he is of course interested) because of the fact that (1) under the Defense Production Act of 1950 federal agencies which are building or adding to industrial plants may be required to provide for the treatment of wastes, and (2) government contracts and leases also can be left with provisos for building of necessary treatment facilities.

Connecticut pollution cut put at 60% by August

Richard Martin, director of the Connecticut Water Commission, says that by August of this year pollution of coastal and inland waters will be cut by more than 60 percent in the state of Connecticut.

Completion of treatment plants in Bridgeport and Waterbury will reduce to 22,940,000 gpd the present flow of untreated sewage mounting to 55,940,000 gpd. With this improvement, 90 percent of the 200,000,000 gpd of sewage discharged into the waters of the state will be treated. The Bridgeport plant will be in operation by March, and the Waterbury plant before June of the current year.

Water bankruptcy creates rain-making controversy

New Mexico residents are engaged in a controversy over artificial rainmaking. The state is bankrupt of storage water and half of the farmers' wells in the Rio Grande watershed are said to be dry.

Senator Clinton P. Anderson (D-N.M.) raised the issue on a visit to the state on Jan. 24, at a time when ranchers from 13 counties met to form a rain-making organization.

The senator said that lobbying by such groups could do more harm than good and that a bill to regulate rainmakers, which he is sponsoring in the U. S. Senate, should raise no objections. He stated, "If everybody starts seeding clouds, we are sure to have drouth."

Two New Mexico farm groups have under contract a firm which operates rain-making devices for them in areas totaling the size of Illinois—in 20 of the state's 32 counties.

Missouri urged forward on flood control program

Brig. Gen. S. D. Sturgis, Jr., told the 46th session of the Missouri Basin Inter-Agency Committee he was disappointed at slow flood control progress in Missouri. His address was his last as Missouri River division engineer. The state has rejected several Army Engineer proposals for flood control dams.

"I believe it is dangerous for the people of the lower basin to permit the flood control and development program to lag too long," he said.

"It is physically and economically impracticable to accomplish any noticeable degree of flood control in major waterways by means of storage in farm ponds," he said, emphasizing that solution to the problem is to "plan comprehensively for water resource control and development."

Gen. Sturgis is now commander of the Sixth Armored Division at Fort Leonard Wood.

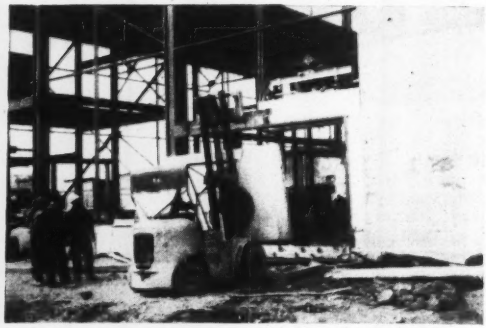
N.E. business leaders plan international trade mart

Mayor John B. Hynes and business and commerce leaders in Boston have announced plans to establish an international trade mart for the Port of Boston to expand business in the New England area and make greater use of its facilities.

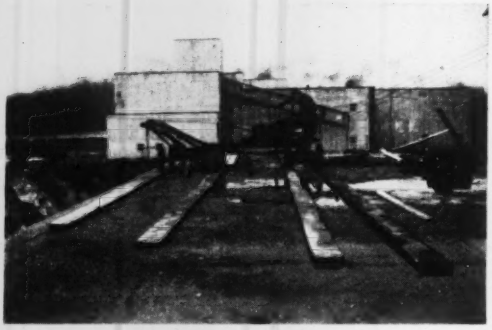
International House in New Orleans is the pattern in the minds of mart promoters. The business at the Gulf port has increased by many millions during the three years of its existence, according to Mayor Hynes.

ICE CRIPPLES WATER SUPPLY—There was lots of water, but mostly frozen, in the ice-choked Susquehanna River near Columbia, Pa. What wasn't frozen had been forced over the banks, flooding the local waterworks and putting it out of use. Water was hauled from nearby supplies with fire hazard more serious than thirst as the town's 12,000 persons awaited a thaw last week. (Wide World photo)

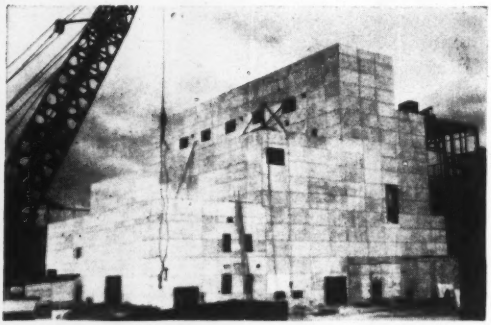
PRODUCTION LINES 200 ft long were set up for precasting insulated wall panels for a woodpulp mill. After curing . . .



PRECAST PANELS, 6 ft high by 10 ft wide, were transported by a fork lift truck to the building to be enclosed, where . . .



JOB-MADE HOIST that traveled along the edge of the roof picked up the panels. Clamped to the steel frame . . .



COMPLETED WALL looks like Indiana limestone. (Chemical end of pulp mill shown here.)

Sandwich walls precast for pulp mill

S. B. Roberts
Chief Engineer
Celanese Corporation of America
New York, N. Y.

INSULATION was sandwiched between two thin 6x10-ft concrete slabs to form exterior walls of a sulfite woodpulp mill in British Columbia. These wall panels are only 5¼ in. thick; yet tests showed that they are strong and durable, as well as good barriers to passage of heat.

Precast in 200-ft long production lines, the walls were produced and erected at relatively low cost. Nevertheless, this was a pioneer job. Many lessons were learned that should lead to even lower costs in future applications.

Celanese Corporation of America built this pulp mill for its wholly owned subsidiary, Columbia Cellulose Co., Ltd., on Watson Island, near Prince Rupert. Plant buildings occupy 307,320 sq ft of ground area, on a site that was quarried from a shelf of rock between the salt water of Porpoise Harbor and the evergreen forest that will supply the mill.

• Plant enclosed in concrete—Buildings are of steel-frame construction. Roofs are flat, composed of builtup roofing on channel-shaped precast-concrete slabs. Ranging in length from 6¼ to 10 ft, these slabs are 16 in. wide and 1¼ in. thick and have 4¾-in. long flanges. Over areas where high humidity will be the rule, insulation was placed on top of the slabs.

Exterior walls of the semi-open wood-room building are uninsulated tile. All other outer walls are precast concrete, either of the sandwich type or 4-in. thick, uninsulated solid slabs. In all, 3,589 wall panels were fabricated, comprising 191,800 sq ft of wall area.

Sandwich panels are 6 ft high and 10 ft wide. They consist of a 2-in. thick layer of cellular glass insulation and two wire-mesh reinforced slabs of 3,000-psi concrete, tied together with channel-shaped strips of expanded metal. These ties also serve as shear reinforcing.

The slab forming the outer face of the wall is 2 in. thick. The inner face is 1¼ in. thick and incorporates threaded metal inserts near its corners for fastening to the building steel. Sandwich panels were used wherever inside wall temperatures would fall below the dewpoint if the wall was not insulated.

• Selection of wall construction—Durability of the wall and protection of the white purified pulp against contamination—at reasonable cost—were main factors controlling the choice of wall construction. Other factors were availability of good aggregate and construction problems incident to almost

continuous rainfall and shortage of labor.

While appearance was not an important consideration, the precast walls are, nevertheless, attractive. An experienced builder who visited the mill reports, "The walls look like Indiana limestone, and I like them."

Designers analyzed 13 wall constructions before choosing the concrete and glass-insulation sandwich. They calculated that the coefficient of heat transfer for the 5½-in. insulated panel would be 0.17, whereas the coefficient of the 4-in. solid slab would be 0.82 Btu per hr per sq ft per deg F. And tests made in the laboratories of Centre de Researches de l'Ecole Polytechnique, in Montreal, provided convincing proof of the compressive, shear and flexural strength of the panels.

As a result of these tests, sizes and types of preliminary designs were modified. Details changed included addition of two flush lifting loops to simplify erection; use of flat joints, instead of tongue and grooved; and insertion of a 3/32-in. thick lead sheet under the clamp attaching the panel to the building frame.

• **Mass-production precasting** – First structure to be erected was a warehouse, which housed the precasting floor during construction of the other buildings. Great care was exercised in pouring and finishing the warehouse floor, since it was to be used as the casting bed. Four 200-ft long production lines were set up.

The cycle was: Pour during the day, cure at night, remove slabs with vacuum pads next morning, prepare forms for next pour, and then repeat. In this way, 35 panels were turned out each day. Though at this rate it took six months to complete the necessary number of wall units, the equipment schedule was met. However, some walls were left open until certain large equipment—too big to go through the doors—was delivered and carried into the buildings.

In each production line, a pair of 4x5½-in. angles were placed 6 ft apart to form the long sides of the wall panels. Wood end dams were laid between them at required intervals. Inserts were nailed to wood plugs in the casting floor. Next, wire-mesh reinforcing was installed, with channel-shaped expanded-metal ties wired to it. Preparatory measures were completed with spraying of the floors with a mixture of kerosene and stearic acid, to serve as a separator so that panels could be removed easily from the casting bed.

A 1:2½:3 concrete mix was transported to the production lines from the mixer in a ½-cu yd hopper carried on a fork lift truck. (Throughout the job, extensive use was made of materials-handling equipment required in later pulp-mill operations.)

First to be poured was the 1½-in. thick inner face of the sandwich. Two-inch thick insulation blocks were placed on top. Then, a sealing compound was applied to form a plane of cleavage, as well as to seal the cracks between the blocks. This protects the cellular glass insulation against damage when the slab deflects.

Finally, the 2-in. outer layer of concrete was cast, vibrated, screeded, dewatered with vacuum pads and power-troweled. To avoid formation of fragile edges, a grooving tool was run around the edges of each slab, next to the forms. And for a final finish, the surface was brushed with an ordinary broom.

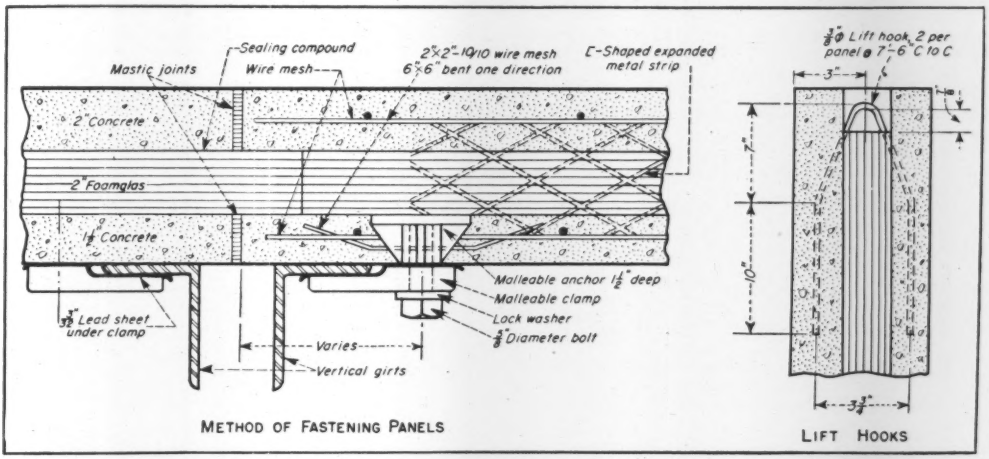
Panels were covered and steam cured for about 14 hours. At the end of this period, they were lifted with vacuum pads and set on edge on fork lift trucks for delivery to rack storage.

• **Fast erection**—When panels were needed, they were delivered to the erection site by fork lift trucks equipped with spreaders, or, on long hauls, by a flat-bed truck with a wood carrier rack. Generally, they were placed temporarily in racks adjacent to the wall being built until the erection crews were ready for them. These crews also were served by a fork lift truck.

Panels were raised by a job-made, rubber-tired, mobile hoist, which traveled along the edge of the roof. Having two welding-machine carriages for a body, the hoist was equipped with a fixed boom; a gas engine and a winch, which acted also as a counterweight; and a spreader with two hooks, which engaged lifting hooks on the top edge of each panel.

In some places, there were elevated cross walls, requiring an additional lift. There, a small stiffleg derrick, set on a high corner, picked up panels from the fork lift truck on the ground. Raised to the lower roof, the wall units were placed on a rubber-tired buggy, which shuttled across the roof along the cross wall, enabling the mobile hoist on the upper roof to reach the panels.

Sandwich slabs were set on edge in mortar, one above the other, from grade beams to roof. They were held against the steel building frame with a malleable iron clamp, a sheet lead washer and a single bolt at each cor-



SANDWICH PANEL consists of cellular glass insulation and two concrete slabs, the over-all thickness being only 5½ in.

ner. Easily assembled, this connection required a minimum of labor and fitting. From 20 to 30 panels were installed in each 8-hr shift.

• **Joints**—Procedure followed in placing the wall units was: First, 1x1x⅜-in. precast-concrete spacer blocks were set on grade beams. Mortar was troweled on to form a base, and the first wall slab was set. To provide continuous insulation between sandwich panels, a preformed triangular strip of RR-1950 (a product of H. H. Robertson Co., Pittsburgh, Pa.) was laid along the edges of the cellular glass insulation. These strips were made on the job.

After the first wall slab was clamped tight to girts, concrete spacers and mortar were applied on top of it, and then the second panel was set. This technique was continued until all panels were fastened in place.

Vertical joints were formed by cementing 4-in. wide, closed-cell foam-rubber strips to the edges of the wall units, before they were bolted. Finally, a calking compound made by Tremco Manufacturing Co. was applied to the inside and outside vertical joints by men working from a hanging scaffold.

Both the calking compound and preformed strip were chosen, after investigation of several alternatives, as being the least expensive materials that appeared suitable for this particular application.

• **Labor**—Construction labor was hired locally. The casting crew consisted of 40 men: 4 cement finishers, 1 reinforcing-bar man, 3 carpenters, 2 handymen and 30 laborers.

A typical erection crew and hourly rates in Canadian currency were as follows: 1 foreman, $1.75; 1 fork lift truck operator, $1.45; 1 hoistman, $1.60; 2 scaffold men (bolters), $1.25; 1 mortar man, $1.25; 1 fork lift truck helper, $1.15; 1 signalman, $1.15 and 1 handyman (trimmer, cleaner), $1.30.

On elevated cross walls, three additional laborers and one hoistman were required for the stiffleg derrick and to push the panel buggy.

• **Costs**—Delivered to outdoor storage racks, sandwich slabs cost $1.70 (Canadian) per sq ft.

Erection cost totaled $0.395 (Canadian) per sq ft. Component unit costs were: labor and equipment rentals, exclusive of finishing costs, $0.172; moving and sorting panels and equipment, $0.042; breakage, $0.018; storage racks, $0.015; pointing and finishing joint labor, $0.019 for interior and $0.038 for exterior; jointing material (adhesive cement, foam rubber, calking compound, sealing material, grout and oakum), $0.054; and clamps, bolts, nuts, washers and lead sheets, $0.037.

Total cost of sandwich slabs in place was $2.095 (Canadian) per sq ft.

In comparison, the 4-in. solid slabs cost $0.88 per sq ft in the racks and $1.275 per sq ft erected.

• **Lessons learned**—Breakage was negligible and the work was handled well. It was, however, a pioneer job in many respects. Before duplicating it, designers and builders should consider the following:

1. Clamping materials cost $1.96 per panel and the lead sheets were one-third of this. A less costly fastening arrangement should be developed.

2. Erection would have been faster if the portable roof hoist had had a horizontal boom that could be moved to bring the wall panels in against the girts.

3. Shop details should be watched closely, to avoid occasional chipping of the slab where rivet heads, clip angles or other projections protrude beyond the plane of the inside surface of the wall.

4. Wall openings and supporting steel should be designed for a minimum number of panel sizes.

5. For buildings in a cold and very rainy climate, for which some large first-floor equipment arrives late, it would be better to support curtain walls at intermediate levels rather than on the grade beams, requiring a whole tier to be left out to enable a crawler crane to install the late equipment.

6. Vertical joints cost too much. The relatively expensive foam rubber had to be supplemented with hand calking and pointing.

The Columbia Cellulose Co., Ltd., acted as general contractor, with Charles H. Klotz of the Celanese Corporation of America as project engineer, James W. Macri, general superintendent, and H. M. Wilgus, engineer-in-charge of engineering drafting. Walls were fabricated by Creaghan Archibald, Ltd., of Montreal, with V. Murray in charge.

Lightweight concrete fenceposts

"Concrete fence posts are meeting the demand for durable fences in Wyoming", reports K. C. Bellows, contractor-engineer of Sheridan, Wyo. He points out that this type of post is less subject to deterioration by alternate wetting and drying in irrigated sections and by alkali-bearing soils of the arid regions.

Practical experience has evolved a post with an equilateral-triangle cross-section, with rounded corners. Each side of the triangle measures 5½ in. Posts are 6 ft 6 in. long. Each of the corners is reinforced with a ⅜-in. deformed rod, with ½-in. concrete cover.

A post requires 0.56 cu ft of concrete. With sand and gravel concrete, the weight of each unit was 90 lb. To overcome the weight disadvantage, lightweight concrete aggregates were investigated. The most satisfactory results were obtained with natural-occurring pumice produced from deposits in southwestern Wyoming. Deciding factors in selection of this material were the high strength, low modulus of elasticity, and lightweight obtained.

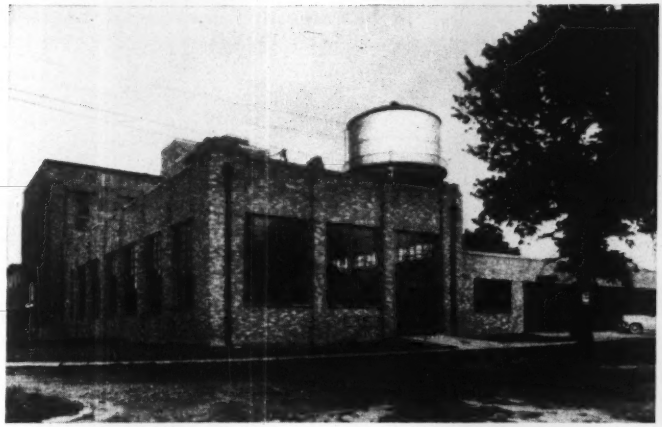
All of these structural advantages were obtained without increase in amount of cement required to obtain strength comparable to sand-and-gravel concrete. It was unnecessary to add sand to obtain strengths of up to 4,500 psi.

For economy and reduced weight, the production mix was designed for the minimum amount of cement to provide sufficient strength to meet rigid inspection standards set by the producer.

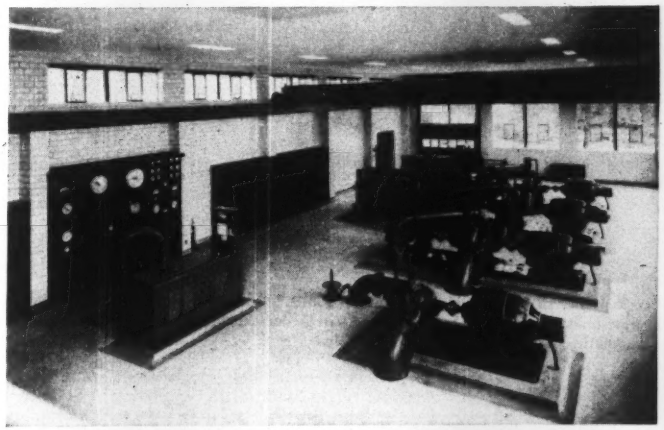
To obtain compressive strengths exceeding 3,000 psi with all-pumice aggregate, this mix was used: 94 lb cement, 200.72 lb minus #4 pumice, 98.16 lb ¾ to #4 pumice, and 80.06 lb water. This mix contained 6 sacks of cement per cu yd. Dry unit weight was 96 lb per cu ft.

With the same reinforcement, weight per post was reduced from 90.0 to 60.5 lb. Because of the low absorption of the pumice, it is not necessary to pre-wet the aggregate before charging into mixer, Mr. Bellows says. However, more water is used because of the greater surface area of the pumice. Crushed pumice has the appearance of a fine-grained sponge. Because of this physical characteristic, the aggregate bond strength is high and the modulus of elasticity is as low as 1.5 million, resulting in reduced cracking of the units while handling, transporting, and setting in the ground. Strength of the post is comparable to sand-and-gravel concrete with the same cement content, according to Mr. Bellows.

Pumice is obtained from the Superior Pumice Co. deposits near Superior, Wyoming.



NEW PUMP ROOM for waterworks is in an added wing on filtration plant at Moline, Ill. Its basement houses low-lift pumps which draw water from the Mississippi River. Ground floor (photo below) carries high-lift pumps that feed 100-mi system of mains.



NEW PUMPS have electric drive. Two (in background) have stand-by gasoline engines to take over during power failures. In front of control panel at left stands gasoline-powered generator that will feed small motors and lighting system in emergencies.

Growing city electrifies water supply, replaces steam-powered pump plant

MOLINE, Ill., is cutting down its water supply worries: It has completed an electric-powered pumping station to replace a steam plant which as recently as 1948 was worked 47% beyond rated capacity to supply 4.5 mgd of water. The new plant is the first stage in a modernization program—due for completion in 1951—that will give this industrial city of 38,000 a dependable supply of 7.5 mgd.

Moline, on the Mississippi River, takes raw water from an offshore intake by gravity through a shore well (screen house) a short distance from the pumping plant. Three new low-lift pumps—total capacity 11,450 gpm—lift water to the mixing basins of the treatment plant.

(This water system, bought by the city in 1886, built its first filtration plant in 1903; by 1933 it had an up-to-date 5-mgd filter system, a 3,200,000-gal clear water reservoir and two 500,000-gal high-tower tank reservoirs).

• **Pumping system**—Purified water is pumped from the clear water reservoir (after treatment) into the city's 100 miles of mains, by four high-lift pumps.

One pump, driven by a 250-hp motor, has a 2,780-gpm capacity at a total head of 251 ft. Each of the other three has a capacity of 4,170 gpm at 266-ft total pumping head and is powered by a 350-hp electric motor. Two units have dual drives, 425-hp gasoline engines, for use in the event of power or motor failure.

The priming system for the high-lift units is composed of two vacuum pumps. Both are driven by 5-hp electric motors, one being dual driven by a 10-hp gasoline engine.

An auxiliary power generator driven by a gasoline engine is available to furnish electric power for small motors and lights in the plant in the event of power outage. With the emergency gasoline engines on the pumps, the plant can operate indefinitely without outside power.

Pumps were designed to meet peak loads. These come from 7 AM to 3:30 PM, with the heaviest load generally in the last half hour of this period. On hot, dry summer days, the peak occurs between 6 and 9 in the evening—lawn sprinkling hours. Last summer consumption climbed to over a 10-mgd rate during these hours.

The National Board of Fire Underwriters' code calls for a capacity to pump 14 mgd for a 10-hour period for a city this size; the new Moline station is well within this specification.

The new pumping station is in a wing added to the waterworks plant. (The old steam plant was two blocks away from the filtration building).

• **Further plans**—Second stage of the modernization program will include installation of additional sedimentation and filtering basins. The final stage will be installation of water-softening equipment.

Eleven men are employed by the city to operate the plant: a superintendent, an operating engineer, a full-time chemist, four pump operators and four filter operators.

Facts presented in a 1947 survey by Beling Engineering Consultants, of Moline, influenced choice of an electrically-powered system. This firm was then authorized to do the design, with M. R. Backstrom of Moline doing the design of architectural features. Construction and installation were done by contract; Priester Construction Co., Davenport, Iowa, was general contractor. Cost of the entire three-step modernization program is to be $1,500,000—made available by two revenue bond issues authorized in 1947 and 1948.

Scrapers speeded excavation . . .

1 Draglines, which ordinarily would be used successfully on a job of this type, made slow progress in cutting the deep trench in unusually hard clay.

2 So, powerful tractor-drawn scrapers were put to work. They cut the 30-ft depth fast and dumped the earth 200 to 300 ft away. This excavation and haul was done at low unit cost.

3 The scrapers, with the help of dry weather, kept the trench open well ahead of form setting. Wood forms were built to pour 7x7-ft conduit. About 5,000 ft went in in four months.

4 With more than 30-ft top width, the scraper-cut ditch had to be braced at strategic locations. Form setting raced against trench-face drying out.

Putting down a big, deep storm drain: Excavation, sheeting and jacking pipe

RAIN WATER—ponded in the streets and backing up in basements—will no longer be a source of nuisance and financial loss to east-side residents of Tonawanda, N. Y. An extensive storm-drain system is being constructed to convey the water directly into Ellicott Creek, a Niagara River tributary.

When complete, the 12-mile system will represent an investment of about $8,000,000. It's about 50% done now. 5.5 miles are complete.

A. S. Wikstrom, Inc. of Skaneateles, N. Y., held the contract for Section F of the East Side Storm Drain project. The job meant a lot of work: 150,000 cu yd of excavation, 7,500 of poured-in-place conduit, and driving large-diameter pipes under two important streets (see table). Wikstrom's contract amounted to about $990,000.

Construction of a variety of storm-drain conduits—all deep-seated in the earth—presented some unusual problems. Here are a few hints from one contractor's experience:

• **Trench excavation**—Draglines normally would have been utilized. Contractor Wikstrom says, to open up the deep trench (30 ft). But the unusually hard clay made that method very difficult.

So he turned to tractor-drawn scrapers. They did the trick. With tractor pushers, the scrapers sliced down the trench fast. And they made it possible to haul the clay 200 to 300 ft away from the ditch cheaply. This eliminated the load on banks of the open cut.

Turnouts were cut into side banks as excavation deepened. This shortened hauls and speeded excavation.

Scrapers kept the trench open well ahead of form setting with good luck in dry weather. Five or six pan scrapers and two draglines had at times as much as 2,000 ft of trench open.

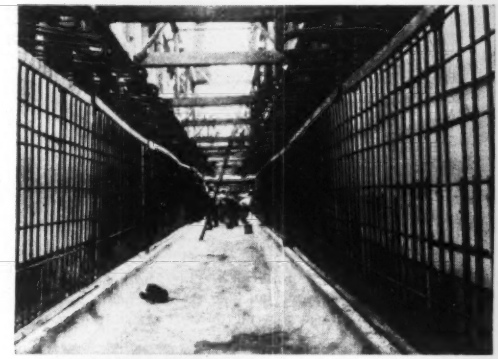
• **Trench sheeting**—In many places, Wikstrom couldn't use open-cut ditching. Along streets and near valuable structures, he had to sheet the trench carefully so as to prevent settling of adjacent earth.

Steel piling was driven on each side

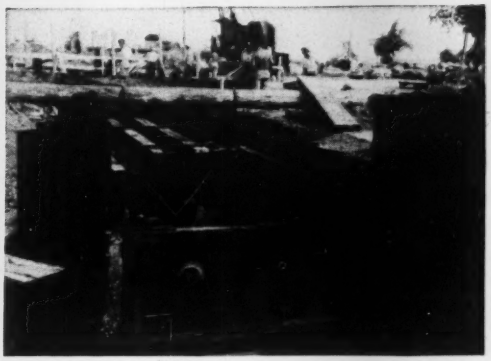
Sheeted trench was truss-braced at top . . .

5 Deep in-street trenches were sheeted with steel sheet piling. Trusses of I-beams and pipe diagonals kept piling from collapsing. The 30-ft sections were hung on chains.

6 The trusses also helped out the form builders in the bottom of the trench. Wooden hangers for invert forms were suspended from the lower chord.



7 After the invert was poured, sidewall reinforcing was set up. It was suspended by hangers from the trusses. Concrete was poured against rock next to piling.



8 The trusses, 8 ft wide and 8 ft deep, were positioned between piling so that top of the concrete conduit could be finished off easily.

of the trench. For the most part these trenches were very deep (20 to 30 ft). This meant that the sheeting had to be braced at the top to prevent collapse.

The bracing consisted of small I-beam and pipe-diagonal trusses. The 30-ft long trusses were 8 ft wide and 8 ft deep. I-beams (6 in. 15.5 lb per ft) placed on their sides formed the top and bottom whalers and braces. They were welded together. Top and bottom chords were separated by the same-size I-beams at 10-ft centers.

The 4-in. pipe diagonals were between the cross braces as well as the verticals. They were welded to the flanges of the I-beams.

The trusses were hung from the top of sheeting or log beams by chains. Hangers for invert forms as well as reinforcement were held in place by the trusses.

Bottom chords of trusses were so placed that they would not interfere with finishing of the top surface of the concrete conduit.

• **Jacking big pipe**—One of Wikstrom's big problems was putting a 96-in. reinforced-concrete pipe under Sheridan Drive. Due to the volume of traffic it carries, this street couldn't be crossed with open cut. The contract called for jacking the pipe under the pavement.

The 23 by 15-ft jacking pit had to be sheeted with steel for a 30-ft depth. Then the enclosed hard clay had to be broken up with an air spade, and loaded into a skip hoist by hand.

Jacking the big pipe through the tough dry clay wasn't easy either. It was started on a railroad-rail and concrete template, about 10 ft long. Pipes were pushed forward by four 100-ton hydraulic jacks. Pressure came from an electric-motor pump with connections to a 3-in. manifold. With individual valves, pressure was supplied from the manifold and connected back to it through ¾-in. copper tubing.

The jacks were mounted horizontally on a thick timber backing set against the face of the pit. This was made of 12x12-in. timbers covered with 3x12-in. oak planks.

Fitting over the tongue of the pipe was a frame of two horizontal 12x12's, 4.5 ft apart, held by two vertical 3x12's 10 ft apart. Four blocks curved to fit outside the pipe tongue and fastened to the frame were wide enough to transfer stress to the pipe's shoulder.

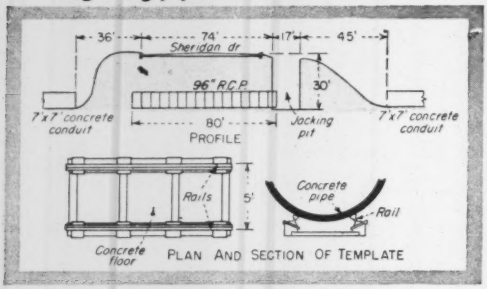
Pusher blocks (12x12 oak) were 1, 2, 3, 4, 5, and 6 ft long. These were put between the jacks and frame to get one-foot of forward movement

Project Quantities—Section F

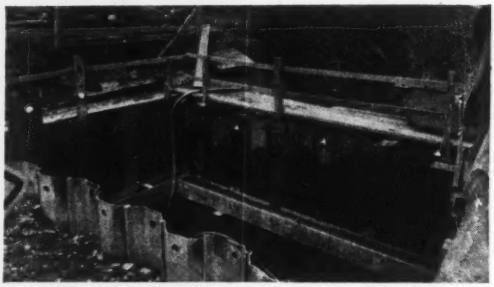
East Side Storm Drain, Tonawanda, N. Y.

150,000	cu yd earth excavation
125,000	cu yd backfill
7,300	lin ft 7x7 (one-cell) concrete conduit (1.5 cy per ft)
130	lin ft 96-in. reinforced-concrete pipe

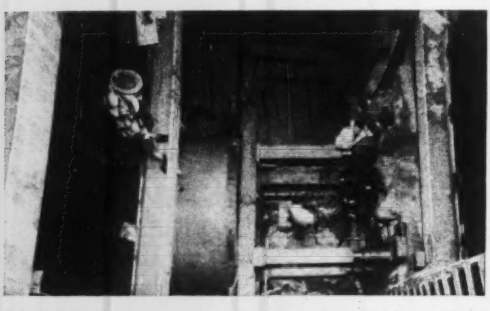
Jacking a big pipe under a main street . . .



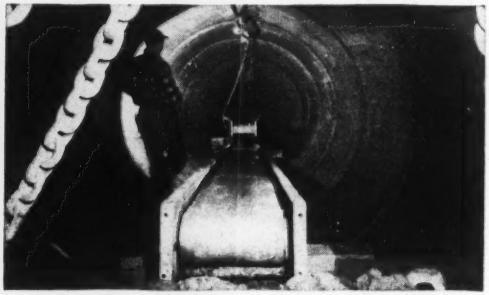
9 Reinforced-concrete pipe, 96-in. in dia, lowered by a 1½-ton crane, was jacked 80-ft under Sheridan Drive, a main street. Pipes were aligned from a template.



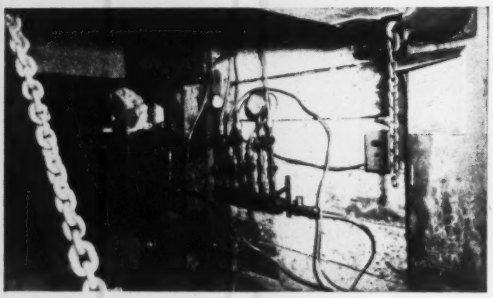
10 The 23x15-ft jacking pit was sheeted with steel piling. Excavation was slow as hard impervious material had to be excavated by clay-spading and manual loading into a skip.



11 The 30 ft deep pit was the scene of powerful as well as delicate operations. Hydraulic jacks shoved the pipe while line and grade were checked with a transit.



12 Very hard clay and stones up to 2-ft across came out on three electric belt conveyors. Digging at the heading was done by two clay spades. Progress averaged 2.5 ft per shift.



13 Four 100-ton hydraulic jacks set against a thick timber backing drove the pipe forward. Pressure came from an electric pump. Connections were by a manifold and ¾-in. tubes.

14 When the timber backing and earth gave way, the pipe could be driven no farther. Closure to the conduit was by steel tunnel-liner plates, gunited with 8-in. of concrete.

at a time. Caps of ¾-in. steel protected the jack-end of each block.

Digging at the heading was done with clay spades. The earth was moved back 10 ft to an electric-driven conveyor belt. This carried it to a skip bucket in the pit. Three conveyors were utilized at the maximum penetration.

Rate of digging average 2.5 ft per shift. The maximum was 4.5 ft. Most of the material was dry. Sand pockets and stones up to 2 ft in diameter were taken out.

As the pipe was jacked forward, Wikstrom points out that line and grade were difficult to maintain. Correction usually resulted in over-correction even at first. And it got harder as the pipe went farther. The leading pipe rose for the first 35 ft. Then after correction, it descended for the remainder of the jacking.

Jacking was discontinued when a penetration of 80 ft was reached. This was necessary because the backing behind the jacks could not carry the load and it failed by springing. The electric pump also broke down.

Closure from the end of the 96-in. pipe to the 7x7 concrete conduit was made with steel tunnel-liner plate. This was placed in sections being bolted into a cylindrical form. It was covered with gunite to give a 96-in. inside diameter.

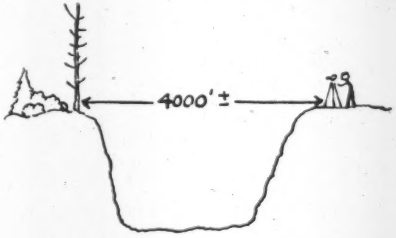
• **Engineering**—The East Side Storm Drain was designed by Nussbaumer and Clark, consulting engineers, Buffalo. Their resident engineer on construction was D. J. Hurley.

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

Ever in a spot like this?



"'**Point your transits** toward Montreal and *get there, double fast!*'—those were orders," recalls Gordon E. Ainsworth, Whately, Mass., surveyor on the original Portland-Montreal oil pipeline, completed in record time back in 1941. "We worked in the field 12 to 14 hours, 7 days a week—through unmapped swamps, mountains and virgin wilderness of northern New Hampshire and Vermont.

"One miserably hot day we hit 'blowdown' in the most impenetrable country I've seen in 21 years of surveying. Levels showed our original line, following a winding mountain road, was 130 feet above the hydraulic gradient established by Humble engineers. Relocating, we faced a deep, wide ravine. Pipe stringers were hot on our heels—there was no time for cutting lines.

"We decided on an approximate check, by stadia, of the elevation on the far side. No rod was available, but hurried reconnaissance turned up a tall beech on the opposite ridge. Exposing the entire length of trunk, we placed red flagging at its base, and aimed the lower cross-hair of our Gurley 'light-mountain transit' at the top of the band. Three of the boys climbed the tree and, at signals from my revolver, moved a second band, which I caught with the upper cross-hair. We got our reading (approx. 40') by taping the vertical distance along the trunk; found the ravine to be about 4000' across. After we carefully read the vertical angle and computed the difference in elevation between H.I. and base of tree, direct leveling gave us our proper location in relation to hydraulic gradient.

"We finished the survey for our 83-mile spread in 10 weeks. Oil was flowing the 236 miles into Montreal only 21 weeks after the first stake was driven in Portland!"

Ainsworth Uses Four Gurley Transits

Today, 10 years later, Ainsworth finds *this same Gurley Transit* "easy to handle...easy to adjust." Now surveying New England spreads on the natural-gas pipeline from Texas, he has 4 Gurley Transits on the job. One, purchased second-hand 15 years ago, is used for his most accurate work. "Since we base surveys on azimuths, the accuracy of the Gurley compass is especially important," he says. "Frankly, for land surveying or construction layout, there is no better instrument at any price."

Take a tip from Gordon Ainsworth's notebook. Learn about versatile Gurley Transits. Bulletin 50 gives all details.

SURVEYORS: We'd like your story for a future page in The Surveyor's Notebook. Just drop us a line....We'll contact you for details later.

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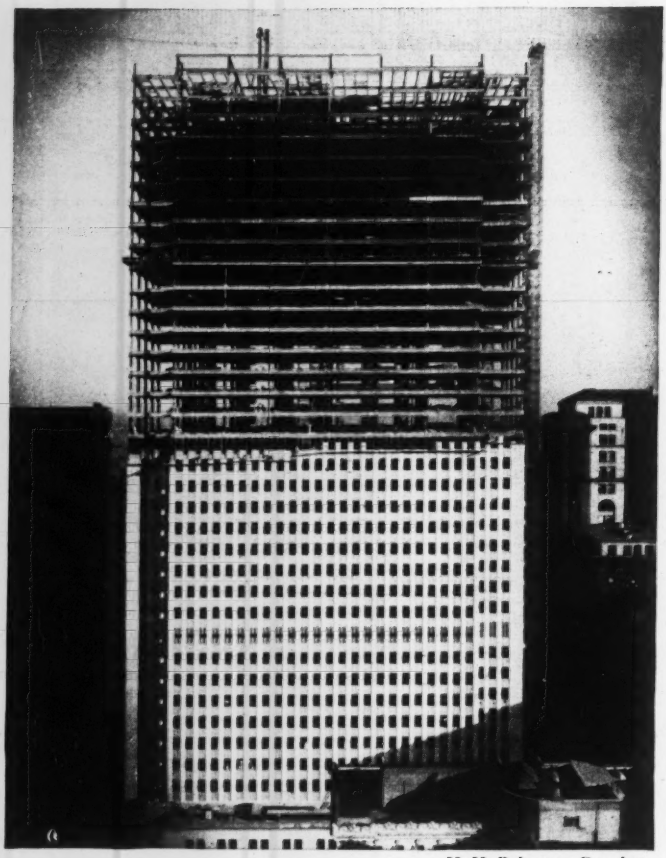


H. H. Robertson Co. photo

Metal panels rapidly covered 41-story frame of . . .

Building with stainless skin

Two applications of light-gage steel helped speed erection of a 41-story office building in Pittsburgh, Pa. In one case, stainless steel was formed into story-high exterior-wall panels. In the second, low-carbon steel was shaped into bay-length floor decking.

Both applications also are expected to result in simpler, more economical maintenance.

The new office building is being built for the 525 William Penn Place Corp. in the downtown business district. The eight lower floors and three of the four basements will be occupied by the Mellon National Bank and Trust Co., which owns an adjoining bank building that will be connected to the new skyscraper. Most of the remainder of the building is leased to subsidiaries of the U. S. Steel Corp.

Construction of the foundations was described in ENR Dec. 7, 1950.

• Stainless steel facing. The structure is rectangular in plan, 114 ft wide by 220 ft long. It rises without a setback to its full 515-ft height—39 stories plus two penthouses.

Architectural treatment of the exterior emphasizes vertical lines. Stainless steel panels are placed in vertical strips between narrow limestone-faced piers extending the height of the building. Further vertical emphasis is gained by cutting in corners to form shallow reveals at the ends of the building.

The metal panels are 12 ft high and 4 ft 2 in. wide. Each is composed of a 7-ft high window and a spandrel. Made of 20-ga steel, the spandrel is stamped in a herringbone pattern for decorative effect, and the inner surface is spray-coated with an asphalt-asbestos emulsion. This coating is intended to keep water from condensing on the metal and to deaden sound.

The window has stainless steel sash, glazed with two panes of heat-absorbing glass (the building is air conditioned). The upper pane is fixed, the lower one movable to permit a window washer to climb out.

• Fast work on the wall—Speed was achieved in enclosing the building because full-story-height facing could be placed as a unit. A four-man crew carried a panel from where it was stored at each level to the outside of the structure. There, they lowered it until the bottom of the spandrel rested on the window head below. Using stainless steel bolts and connection angles, they attached the spandrel to the top of the spandrel beam through inserts in the concrete fireproofing. Similarly, they bolted the window head to the bottom flange of the spandrel beam above.

The next panel was installed 2 ft 8½ in. away from the previous one, thus leaving space for the masonry-faced piers.

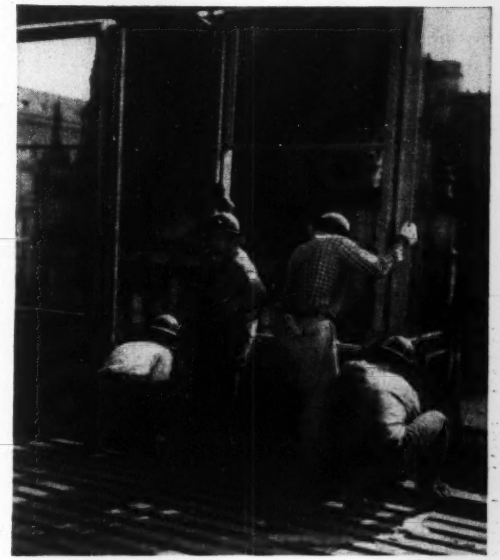
As soon as masons placed the 4-in. thick limestone facing between the metal panels, laying of the 8-in. brick backup commenced. An air gap was left between the brick and the stone and metal facings for insulation. When the backup was completed, the inner face was dampproofed by troweling with a bituminous emulsion, and for further insulation, the lower 2½ ft of the backup was covered with 1-in. thick glass-fiber boards. Later, air-conditioning units were installed against the outer walls.

Finally, the interior of the wall was finished; it was metal furred and plastered in the lower stories, covered with a metal lining in the upper stories. Two stories of the building, on the average were enclosed weekly.

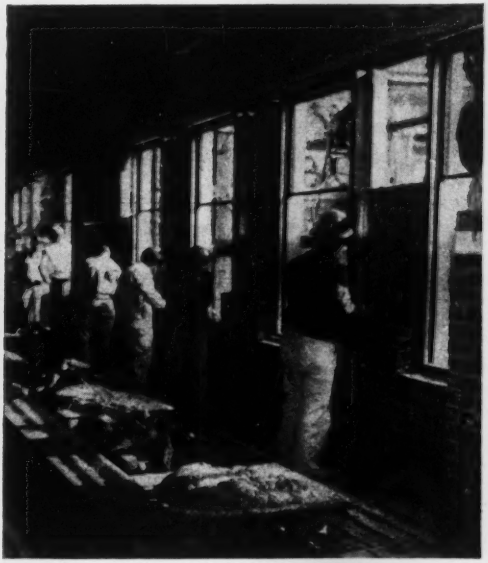
Stainless steel was also applied in other ways in this building. Dowels and anchors for the limestone facing were made of this metal. It will be used for elevator doors and for trim in elevator cabs. And the main lobby will be decorated with large, stainless steel panels.

• Steel floors expedite job—The second application of light-gage steel—bay-length, cellular floor decking—is estimated to have shortened normal building time by at least two months.

Supplied in 2-ft wide strips and welded to the structural steel frame, the decking was placed almost as soon as the structural steel was erected. In



STAINLESS STEEL PANELS, composed of both a window and a spandrel, were installed as story-high units. The spandrel is stamped in a herringbone pattern.



BRICK BACKUP was placed inside metal spandrels and limestone piers by bricklayers working on cellular steel decking, which later was concreted to form the floor.

fact, before they were jumped, the steel erector's derricks lifted the metal panels for the two stories they had just erected.

Distributed over these levels, the decking served as workmen's scaffolding and provided a platform on which the exterior metal wall panels, limestone, brick and other materials could be stored.

The cells in these floors carry telephone cables and electric wiring. Office space, consequently, can be subdivided in any way desired, since access to electric outlets may be had within a few feet of any point on a floor.

The decking forms the floor in office areas only. It carries a 2½-in. deep, foamed slag-concrete fill, topped with a 1-in. cement-motar finish and asphalt tile. Each of the office floors has a net area of 17,500 to 19,700 sq ft.

Ceilings under the metal floor are made of a lightweight, fire-resistant plaster. Double suspended ceilings may be used in conjunction with metalpan acoustic tile and flush fluorescent fixtures. Elsewhere, single ceilings are used and lighting fixtures are surface-mounted. Ducts are not needed for conditioning the exterior areas of the building, since these portions are served by a high-velocity system with small-diameter pipes.

Movable steel partitions will be installed after the floors and ceiling. Thus, subsequent changes in space arrangement may be made without alterations in floor or ceiling finishes. Partitions and doors have a baked-on enamel finish for permanence and ease of cleaning.

• **Service core**—Floors are 4-in. thick foamed slag concrete, with a 1-in. cement-motar finish, in the vertical service core. Containing elevators, stairways, toilets, storage space, air-conditioning duct shafts and a vertical conveyor for delivering mail and supplies in each story, this space is located in the center of the structure, thus making available for office use all the space around the outside of the building. Two service elevators will serve the whole building; five passenger elevators and a moving stairway will handle traffic to the bank, and eighteen passenger elevators serve the upper portion of the skyscraper. In addition, there are five auxiliary lifts to service basements and penthouses.

The 15th and 32nd floors, on which air-conditioning equipment is installed, are formed of 2,500-psi concrete. So also are the penthouse floors, where more equipment is located, and the floors in the three basements.

The main floor of the existing bank continues into the new building, but it is partly below ground there because of the varying grade of the surrounding sidewalks. This floor will be connected by a moving stair with the main lobby, which is at the William Penn Place level, one story higher.

• **Contractor's plant**—When the building is completed, trucks delivering supplies will drive down a ramp into the first basement onto a turntable. Turned and unloaded, they will drive out the same ramp.

The contractor is now using this area for delivery of materials. He also has his equipment and materials for making mortar and slag concrete there. The slag is brought in at first-floor level and dumped by trucks into a hopper. In turn, the hopper feeds wheelbarrows in the first basement.

Materials are raised from this area to the various working levels by a hoist. This lift runs on the outside of the building above sidewalk level but terminates in a portion of the basement that extends under the sidewalk.

Turner Construction Co. is the general contractor, with George M. Reaves as project manager and George Kube as superintendent. During construction, the owner—525 William Penn Place Corp., John W. Galbreath, president—was represented by E. D. Hollinshead, vice president. Architects for the building are Harrison & Abramovitz and W. Y. Cocken, with John F. O'Brien as field representative. Edwards & Hjorth were consulting structural engineers and Meyer, Strong & Jones, consulting mechanical engineers.

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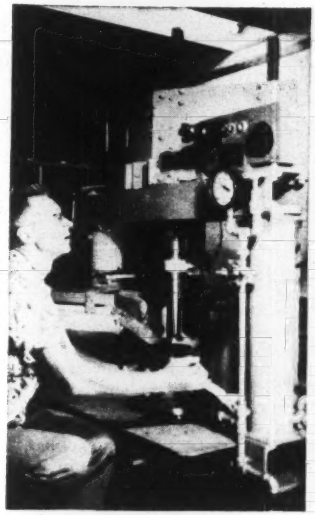
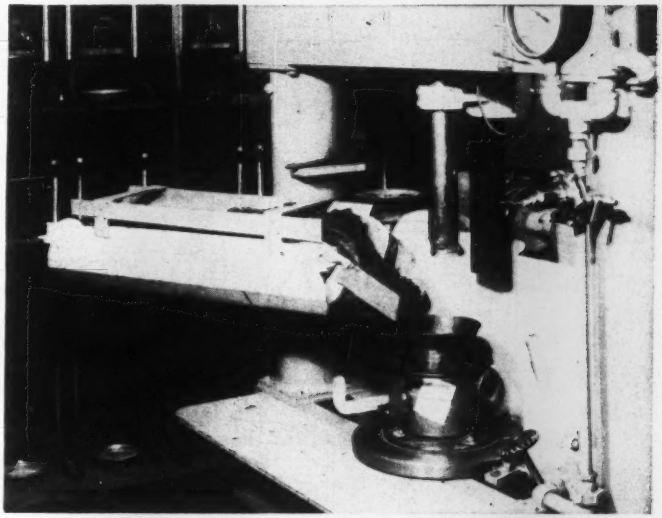


OPERATOR WATCHES counter indicating number of tamps. Lever at right lifts tamping foot from the sample.



MATERIAL IS GRADUALLY FED to the mold from a conveyor belt as a sample is made. Rotation of the mold and operation of the feeder is automatic, operation of the whole cycle requires only one simple hand operation.

Field-like samples from lab for soils, bituminous tests

A NEW MACHINE for compacting laboratory samples of soils and bituminous mixes to a close approximation of field conditions is now in use in a number of West Coast highway laboratories.

Designed to provide the kneading action believed necessary in the production of adequate laboratory samples, the machine is known as a "kneading compactor."

Machines now in operation will accommodate specimens ranging in height from 2 to 8 in. and up to 8 in. in diameter. They are expected to be of great aid in design of granular bases and bituminous pavements.

• **How it works**—Through a tamping foot shaped like a segment of a circle, the compactor applies a series of individual tamps to a specimen as it is gradually built up in a cylindrical mold. Tamping continues for a brief period after all the material in the sample has been introduced into the mold. The action is such that in any one tamp, the pressure is gradually built up and then allowed to dwell on the sample for a fraction of a second before being gradually released. Compaction rate is 30 tamps or cycles per minute.

A control system combining hydraulic and pneumatic pressure governs the machine's operation; calibration has established the air pressure at which specific applied loads are developed. For example, a 40-psi working air pressure results in a load of 1,600 lb applied to the specimen. Since the area of the tamper foot is 3.2 sq. in., the corresponding unit pressure is 500 psi.

With the air pressure set, the control system is such that the load on the tamper foot remains constant: As soon as the piston controlling the foot exerts more pressure on oil in the control system than exists in compressed air in the upper part of the oil reservoir, a pop valve allows excess air to escape.

• **Electrically powered**—A 1-hp electric motor powers the tamper foot by means of a toggle-press mechanism operated through a speed-reduction gear, flywheel and connecting rod. Through other connections, the motor rotates the table that supports the mold. Axis of the tamper foot is displaced slightly from axis of the mold and supporting table. Thus, as the mold is rotated, there is uniform compaction over the entire surface.

Besides an electrical lead, the only other external aid needed to operate the machine is a compressed air supply for the control system.

Operation of the machine is semi-automatic, since all the operator need do is lower the tamper foot and raise it again after the proper number of tamps. A micro-switch on the tamper foot arm operates the counter. This switch is so set that only full pressure tamps are recorded by the counter.

Strong evidence supporting the need for kneading-type compaction in working with bituminous mixes has been compiled by those associated with the development of the new machine. Armed with this evidence, they have made up and put to use a goodly number of these machines.

An extensive program of comparison with other methods of compaction was first undertaken. This program included fabrication of test specimens with different types of bituminous mixes. Relative values of densities were obtained together with an evaluation of the effect of method of compaction on the mechanical properties of the various mixes.

Also included in the program was an attempt to standardize laboratory procedure in regard to compactive effort (i.e., number of tamps and pressure used). The comparison and standardization program has developed to the extent that the machine is now in use in design work as well as in checking existing road surfaces.

The entire objective is to develop

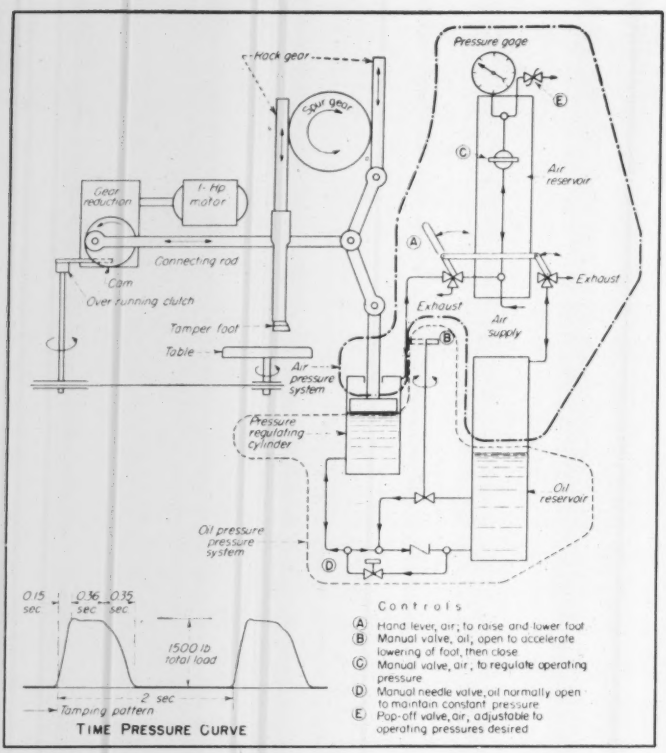


DIAGRAM of mechanical compactor. Oil pressure system is enclosed by dashed line, heavier line at top right encloses air pressure system.

laboratory specimens that compare favorably with cores of the same material taken from road surfaces that have been subjected to given traffic conditions for a specified time interval.

The compactor was designed by F. N. Hveem, construction engineer (formerly supervising materials and research engineer) of the California Division of Highways. The first model was detailed and fabricated by the University of California Institute of Transportation and Traffic Engineering in accordance with recommendations of the Triaxial Institute.

This latter group is sponsor of the compactor development program and is a project committee of ASTM. Victor Endersby, of the Shell Development Corp., is chairman of the Triaxial Institute. Design was based on experience gained with kneading-type compactors by the California Division of Highways, the Richmond laboratory of the California Research Corp. and Shell's Martinez laboratory.

Thirteen machines have been made by the August Mfg. Co., Oakland, Calif., based on a production model made by the California Division of Highways. Eight of these are in use by California Division of Highways laboratories, one each is being used in the testing laboratories of the Washington and Colorado state highway departments and the Los Angeles County highway department, one is being used by the University of California Institute of Transportation and Traffic Engineering, and one is being used by the Shell Oil Co. in its St. Louis laboratory.

Other machines are being made by individual organizations in accordance with drawings furnished by the University of California Institute of Transportation and Traffic Engineering. One of these latter units is being made by the Ontario Department of Highways, Toronto, Ontario for its own use.

Authority reports on Mackinac Bridge

Mackinac Bridge Authority engineers have submitted a preliminary report to the governor and legislature of Michigan asserting the physical and economical feasibility of a five-mile, $76,300,000 bridge across the Straits of Mackinac.

According to Coverdale and Colpitts, traffic engineers, enough additional traffic would be generated so that total cost could be paid for out of future revenues without increasing fees now charged for ferry crossings.

The bridge would extend almost due north from Mackinaw City to a point west of St. Ignace. The main span—a suspension type—would be 3,800 ft long, second only in length to the Golden Gate Bridge in San Francisco, which has a span of 4,200 ft. Side spans will be 1,500 ft. The remainder of the crossing will consist of 22 truss spans on concrete piers ranging in length from 302 to 560 ft with four spans near each shore of from 160 to 200 ft.

• **A record anchorage**—Steel towers of the bridge would rise 565 ft above lake level and support cables 25.6 in. in diameter. Anchorages would require 90,000 cu yd of concrete.

The roadway will carry two lanes of traffic in each direction.

Minimum clear height of the bridge at mid-span would be 150 ft, allowing the largest lake ships to pass.

The bridge was designed for ice pressure and wind velocities of 120 mph. The highest velocity at the straits ever recorded was 78 mph.

• **An annual cost**—Maintenance costs on the bridge would average about $400,000 per annum. Financing of the bridge would add $10,000,000 to the initial capital required.

Consideration was given to a railroad across the bridge. Additional cost of this plan would be $60,000,000. A four-lane vehicular tunnel was also considered, estimated cost being $141,000,000, with an estimated cost of operation $1,000,000 for the first year. Costs stated are all estimated before allowing for finance capital.

• **Responsible men**—D. B. Steinman, P. H. Ammann and G. B. Woodruff were consulting engineers. Members of the Authority are:

Prentiss M. Brown, Chairman, of Detroit; Fred M. Zeder, Vice Chairman, of Detroit; William J. Cochran, of Iron Countain; Charles T. Fisher, r., of Detroit; George A. Osborn, of Sault Ste. Marie; Murray D. Van Wagoner, of Detroit; and Charles M. Zeigler of Lansing.

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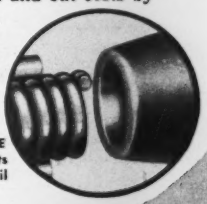

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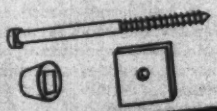

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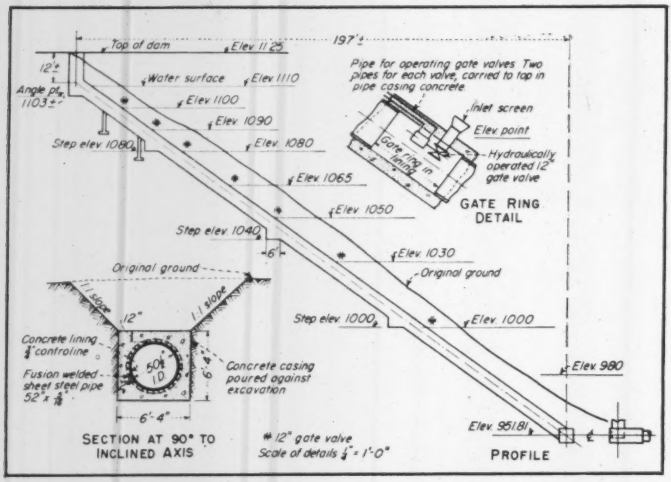
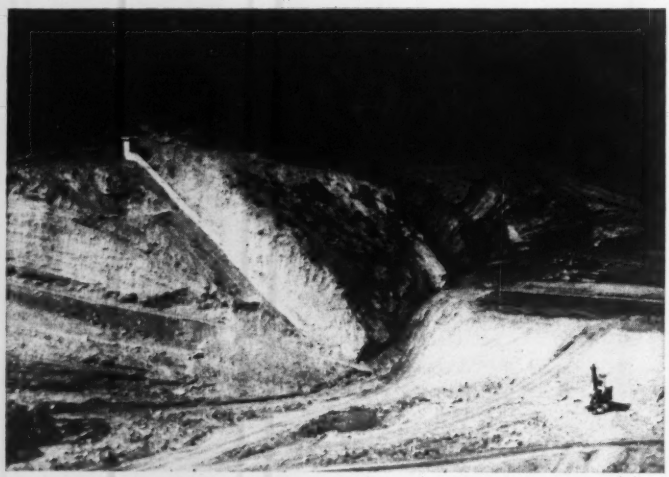


WATER INTAKE for new California domestic supply reservoir is inclined in a rock trench just above the earthfilled dam. Stability of the inlet is thus greater than for a vertical-type inlet.



SLOPING ON A 33-DEG ANGLE, the inclined inlet has eight valve openings at various reservoir levels. Valves are controlled at the top of the inlet. Water travels from intake through an outlet conduit passing under the dam.

Inclined inlet for reservoir

N. J. Kendall

Chief Engineer
San Jose Water Works
San Jose, Calif.

AN INCLINED INLET will assure close control of water stored in the just completed 6,000 acre-ft Austrian reservoir near San Jose, California. Believed to be the first such inclined inlet ever built, it is possible because of the deepness of the gorge and the soundness of bedrock just above the axis of the dam.

The $1,500,000 project—which includes a 1,610,000 cu ft earth fill dam—is expected to increase by 5 mgd the take of the San Jose Water Works from Los Gatos Creek during a critical cycle (3-yr dry period). The water company is a private utility serving domestic water to about 45,000 consumers in San Jose, Los Gatos, Saratoga and the surrounding territory, comprising some 100 sq mi of service area in California's Santa Clara valley.

• **Cheaper construction**—Main reason for resorting to an inclined inlet is cheaper construction. The more usual vertical type inlet would have had to be designed for self support and that would have increased the costs. What engineers did was simple enough: they built the intake against the sloping side of the reservoir.

The intake is laid in a trench cut into the natural bedrock, sloping at about a 33-deg angle from the horizontal. It consists of 250 ft of 52-in. dia steel pipe encased in a minimum of 12-in. of reinforced concrete. The pipe is lined with a ¾-in. thickness of cement mortar.

Eight 12-in. inlet valves are set at various elevations along the incline—the elevations having been determined by volumetric content levels of the reservoir. These valves are operated hydraulically from a control system installed at the top.

Other than the spillway, the inclined water intake structure is the only means of withdrawing water from the reservoir.

The intake leads to an outlet conduit 1,100 ft long, similarly built of 52-in. dia ⅜-in. thick, steel plate. This conduit extends under the earth-fill dam and was built in a rock trench.

• **Close borrow**—The dam proper comprises compacted material and has a maximum height above original stream bed of 170 ft. Crest length is 800 ft and maximum thickness is 195 ft.

Construction of the earthfill was simplified by the closeness of borrow areas. Beside such good material as was available from the stripping operation, the fill materials came from borrow on both the north and south abutments. About 70% of the required earth came from the north abutment within 1,000 ft of the dam.

The fill material was moved into place by carrying scrapers and deposited in 6-in. layers, bladed with a motor grader and rolled with double units of 10-ton sheepsfoot rollers. Sprinkler wagons added extra moisture as required.

Continuous control of the fill was maintained during the entire operation. This was accomplished by means of Proctor tests and density determinations. The fill averaged about 125 psf with almost all density tests being above 120 psf.

Stripping depth along the abutments averaged 15 ft and was as deep as 40 ft in some instances. Approxi-

mately 600,000 cu yd was involved in the process of removing the overburden from the dam site and about half of this was usable in the fill.

Two cutoff walls parallel the axis of the dam. The base material was grouted along the line of the upstream cutoff wall, but very little grout was taken.

A side channel spillway, 830 ft long, will take floods as great as 6,450 cfs over the north abutment of the dam. Greatest measured flood in the Los Gatos Creek (during an 11-yr period) was 2,000 cfs. A 9 sq mi drainage area is involved.

Construction was started in April, 1949, with emphasis during the first year on the inlet and outlet conduits and access roads. In March, 1950, work started on the remainder of the project. Maximum fill progress was as high as 24,000 cu yd of earth placed in one 24-hr period while working two 10-hr shifts. During August 500,000 cu yd was rolled into place in the earthfill.

Rock for the upstream face of the dam was obtained from a quarry ½ mi above the dam axis. The rock blanket is 2 ft thick and contains approximately 20,000 cu yd of material.

This project has been contemplated since 1913. Land and water rights were purchased as early as the 1870's. The purpose is to increase the surface supply of the water company by impounding flood waters that will be used over periods when stream flow is insufficient to fill the company's intake works and flume to full capacity.

Earl W. Heple, San Jose, was general contractor for all of the work, amounting to a contract price of $864,995. Heple sublet fill and spillway work to Granite Construction Co., Watsonville, Calif.

The project is wholly financed by the San Jose Water Works, a private water utility. It was designed and built under the supervision of the company's chief engineer, author of this article. Consultants on the design were Augustus Kempkey and the late Fred Herrman.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Construction of contracts

"It is not the province of the court to alter a contract by construction or make a new contract for the parties; its duty is confined to the interpretation of the one which they have made for themselves, without regard to its wisdom or folly."[1]

Parties that make express contracts, which they have deemed sufficient to protect their rights, cannot claim greater rights outside of the contract.[2]

"It is a settled rule that where a contract contains no words pertaining to an art or trade, is written in plain and popular language, and the facts and circumstances attending its execution and delivery are wholly undisputed, the interpretation thereof is for the court, and not for the jury."[3]

"A contract may be contained in several instruments. These if made at the same time, in relation to the same subject-matter, may be read together as one instrument, and the recitals in one may be explained or limited by reference to the other. The rule obtains even when the parties are not the same, if the several contracts were known to all the parties and were delivered at the same time to accomplish an agreed purpose."[4]

"The law is well settled that he who signs or accepts a written contract in the absence of fraud or other wrongful act on the part of another contracting party, is presumed to know its contents and to assent to them and there can be no evidence for the jury as to understanding of its terms."[5]

It is not the function of the court to make a new contract for the parties, but, if there is a question of interpretation, the court should endeavor to adopt the construction that is most equitable to the parties and that will not give one of them an unreasonable advantage over the other.[6]

"In construing contracts, words will usually be given their ordinary meaning. However, when words or terms having a definite legal meaning are knowingly used in a written instrument, the parties thereto will be presumed to have intended such words, or terms, to have their proper legal meaning and significance, at least in the absence of any contrary intention appearing in the instrument."[7]

Where the language of an instrument is clear and unambiguous with undisputed facts, its construction is for the courts. But in interpreting an agreement, form should not prevail over substance and a sensible meaning of words should be sought. In interpreting an agreement, consideration should be given to the time and the circumstances existing when the agreement was made. The interpretation of an agreement as given by the parties themselves, not alone by their acts, but their declarations as well should be given consideration.[8]

The rule that contracts mean what they clearly say applies to both contracting parties, except for mutual mistakes or for reformation of the contract.[9]

"The court cannot falter in its obligation to enforce contracts of parties entered into for valid consideration openly and without fraud, duress or mistake. It must impose on parties competent to act full responsibility for their actions."[10]

The intention of parties is to be ascertained from the entire instrument and not from detached parts, it being necessary to construe all its parts in order to determine the meaning of any particular part as well as the whole. However, in order that an unexpressed term may be implied, the implication must arise from the language employed in the instrument or be indispensable to effectuate the intention of the parties.

"The courts cannot make contracts for parties, and can declare implied covenants to exist only when there is a satisfactory basis in the express contracts of the parties which makes it necessary to imply certain duties and obligations in order to effect the purposes of the parties in the contracts made. Before a covenant will be implied in the express terms of a contract, it must appear therefrom that it was so clearly in the contemplation of the parties as that they deemed it unnecessary to express it, and therefore omitted to do so, or that it is necessary to imply such covenant in order to give effect to and effectuate the purpose of the contract as a whole."[11]

(1) Fischer & Porter Co. v Porter, 72 A. 2d 98.
(2) Beck v Bechtel Hotels, 72 A. 2d 36.
(3) Commonwealth v Henry W. Horst Co., 72 A. 2d 131.
(4) Massachusetts Bonding & Insurance Co. v Feutz, 182 F. 2d 752.
(5) Slater v Fidelity & Casualty Co. of N. Y., 98 N.Y.S. 2d 28.
(6) Northern Pacific Ry. Co. v United States, 70 F. Supp. 836.
(7) Malbone Garage v Minkin, 72 N.Y.S. 2d 327, 272 App. Div. 109.
(8) Wack v Wack, 74 N.Y.S. 2d 435.
(9) Provident Trust Co. etc. v Metropolitan Cas. Ins. Co. of N. Y., 152 F. 2d 875.
(10) Chicago, Wilmington & Franklin Coal Co. v Herr, 40 F. Supp. 311.
(11) Adkins v Adams, 152 F. 2d 489.

Breach of warranty

"The normal measure of damages for breach of warranty is the difference between the value of the goods if they had been as they were warranted and the value of the goods as they actually were."[1]

(1) In re Gotham Silver Co., 91 F. Supp. 520.

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READER COMMENT

More on New Towns

Sir: After reading your article ("What happened to the New Towns?" ENR Jan. 4, p. 39), I felt impelled to write you in an attempt to correct what I am sure is a misconception on your part.

Your article gives the impression that the new towns are a pipedream, and you have fallen into the error of believing that the new towns were intended alone to absorb the excess population of London.

As you rightly say, the new towns were founded on the Barlow Report, which was detailed in the Greater London Plan prepared by . . . Professor Abercrombie. This plan tried to solve the problem of the growth of London by planning the decentralization of 1½ million people from the metropolis.

The progress and success of each town depends on the solution of four basic problems:

1. It must be remembered that each development corporation was pioneering in the use of planning techniques and each corporation had to face novel problems of administration in a country where administrative techniques had the sanction of ancient custom. (We said in the article the towns were generally well planned.—Editor)

2. In a very short time drains, main road structures and water supplies had to be planned and organized for communities of 50,000 to 60,000 people, and in the case of some new towns this had to be done virtually from scratch. In the case of Harlow, hardly any of these basic services existed. Large sewage disposal plants had to be brought into existence. (This problem was spelled out at length in the article.—Editor)

3. If the new towns were to be effective, self-contained communities, large trading estates had to be established in some cases on near virgin sites. For this purpose industrialists had to be induced to leave the security of London, in the face of a rigid control of industry by the government, which tended perhaps to be biased in favor of inducing the industrialists to move to the special development areas in South Wales, Northeast England and other spots.

4. The organization from nothing of a massive production organization capable of turning out between 500 and 2,000 houses a year, 250,000 sq ft of factory space a year, two or three schools, ten to fifteen shops, and a proportion of public buildings and larger facilities.

I realize that you may read this as being a more detailed argument along the same lines as that produced by you: That the government appears to have bitten off more than it can chew. To be quite fair, I think that a year ago that was not too fallacious a conclusion, although I think it was drawn without a full appraisal of the potentialities of the situation.

You will know that even the finest industrial organization takes a considerable time to gear itself into a completely new project, and a good part of the gap between the start of the new town and the apparent lack of fulfillment was due to the problems of the initial build-up and the solution in particular of the basic problems I have outlined.

In the case of Hemel Hempstead we share, in common with all the other new towns, the first problem of planning and administration, and the planning difficulties were accentuated by the fact that we were also redeveloping an existing community of some size. We could only have proceeded faster by ignoring the processes of compromise and discussion which are inherent in the democratic way of life. In common with all the other London new towns, we were restricted during the whole of 1948 to the employment of 75 men, which was the government's reaction to the economic crisis of that year.

However, in 1951 we are in the position of having solved our basic problems, and I would like to quote you a few figures in support. We have now produced 160 dwellings that are housing families from London. Our first factory is in full production. We have waiting on the line a further half-dozen factories with an employment potential of over 2,000 workers. We have a further 500 houses under construction. We are about to produce a detailed plan for the whole town and a similar one for the town center. Our engineer has solved the many complicated problems relating to surface water disposal which at one time appeared nearly insuperable.

In short, the four problems have been solved here and from what I know of the other corporations, they have either reached the same position or are on the way to it.

G. Brook Taylor
Public Relations Officer
Development Corp.,
Hemel Hempstead, England.

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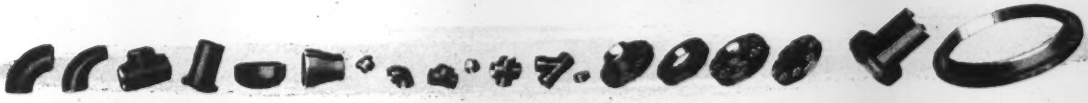

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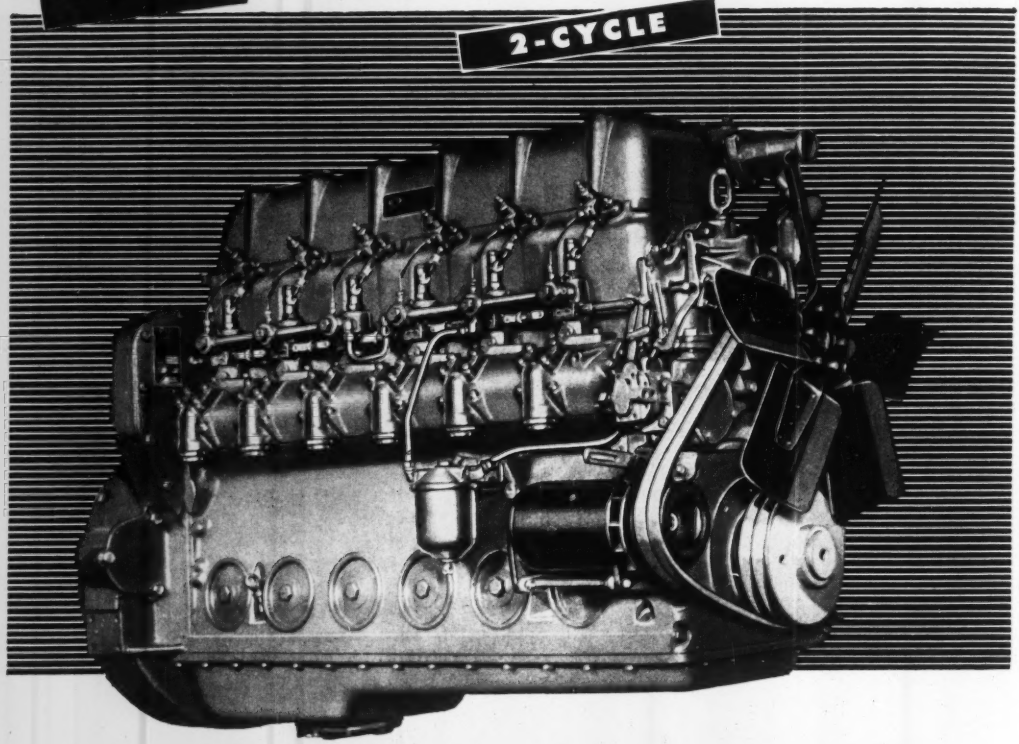

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New Engineering Books

THE NON-DESTRUCTIVE TESTING OF CONCRETE with special reference to the wave-velocity method—Building Research Report No. 3. The Danish National Institute of Building Research, 20 Borgergade, Copenhagen, Denmark.

JOINT VENTURES—By Henry W. Nichols. Reprinted from Volume 36, May 1950, Number 4 Virginia Law Review. University of Virginia, Charlottesville, Va.

RUBBER FOR THE ABSORPTION OF VIBRATION—By J. F. Downie Smith. Engineering Report No. 2. Iowa Engineering Experiment Station, Ames, Iowa.

A SURVEY OF THE RECREATIONAL RESOURCES OF THE COLORADO RIVER BASIN—Supt. of Documents, U. S. Government Printing Office, Washington, D. C. $3.25.

LIST OF AMERICAN STANDARDS—Standardization in two parts, Part II. No. 5001. American Standards Assoc., Inc., 70 E. 45th St., New York 17.

NIGHT-WORK LIGHTING SYSTEMS FOR CONSTRUCTION EQUIPMENT—First Interim Report—Report 980, The Engineer Board, Corps of Engineers. Obtainable from the Office of Administrative Services, Dpt. of Commerce, Washington, D. C. Price $3.75.

SOUND ABSORPTION COEFFICIENTS OF ARCHITECTURAL ACOUSTICAL MATERIALS—Bulletin XII. Acoustical Materials Assoc., 59 E. 55th St., New York 22.

PROCEEDINGS OF THE THIRD HIGHWAY TRANSPORTATION CONGRESS—National Highway Users Conference, National Press Bldg., Washington 4, D. C. Price $1.00.

DURABILITY OF CONCRETE EXPOSED TO NATURAL WEATHERING — Technical Memorandum No. 6-226. Waterways Experiment Station, Vicksburg, Miss. Price $1.00.

Reports and Pamphlets

FRENCH HYDRAULICS AND ELECTRICITY—An English translation of HYDRAULIQUE ET ELECTRICITE. 462 pp. Published by La Houille Blanche, Boite Postale 41, Grenoble, France. Price, paper bound, 2,200 Fr.

333 QUESTIONS AND ANSWERS FOR FIREMEN—Bulletin 119. Iowa State College, Ames, Iowa. 25c.

FATIGUE STRENGTH OF VARIOUS TYPES OF BUTT WELDS CONNECTING STEEL PLATES—University of Illinois Bulletin No. 50. Engineering Experiment Station, Urbana, Ill. 50c.

MOMENTS IN TWO-WAY CONCRETE FLOOR SLABS—By Chester P. Siess and Nathan N. Newmark. University of Illinois Bulletin No. 43. Engineering Experiment Station, Urbana, Ill. 60c.

STUDIES OF HIGHWAY SKEW SLAB BRIDGES WITH CURBS. PART II: LABORATORY RESEARCH—University of Illinois Bulletin No. 46. Engineering Experiment Station, Urbana, Ill. 45c.

MAINTENANCE COSTS—Bulletin No. 29. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

AERODYNAMIC STABILITY OF SUSPENSION BRIDGES with special reference to THE TACOMA NARROWS BRIDGE—Bulletin No. 116 Part II—Mathematical Analysis. University of Washington Engineering Experiment Station, Seattle, Wash.

POZZI PIEZOMETRICI ESTABILITA DI REGOLAZIONE—Societa Editrice Riviste Industrie Elettriche, Milan, Italy.

STREAM SANITATION IN FLORIDA—Bulletin Series No. 34. Florida Engineering and Industrial Experiment Station, University of Florida, Gainesville, Fla.

SAO PAULO PROGRAM OF PUBLIC IMPROVEMENTS — International Basic Economy Corp., Robert Moses, Diretor do Estudo, New York City.

CLEVELAND—YOUR CITY AND MINE—An activities report to the people of Cleveland, Ohio, from the Mayor and Council.

FIELD MEASUREMENTS OF THE SETTLEMENT RATIOS OF VARIOUS HIGHWAY CULVERTS—Bulletin 170. Iowa Engineering Experiment Station, Iowa State College, Ames, Iowa.

THE USE OF CALCIUM CHLORIDE IN CRUSHED STONE STABILIZED BASE—Bulletin No. 171. American Road Builders' Assoc., International Building, Washington 4, D. C.

PANEL DISCUSSION ON CONCRETE PAVEMENT DESIGN—Bulletin No. 170. American Road Builders' Assoc., International Building, Washington 4, D. C.

ASPHALT SOIL STABILIZATION IN OKLAHOMA—Bulletin No. 169. American Road Builders' Assoc., International Building, Washington 4, D. C.

SIGNIFICANCE OF TESTS FOR ASPHALTIC MATERIALS—Bulletin No. 119. Texas Engineering Experiment Station, Agricultural and Mechanical College of Texas, College Station, Tex.

SYMPOSIUM ON PLASTICITY AND CREEP OF METALS—Special Technical Publication No. 107. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

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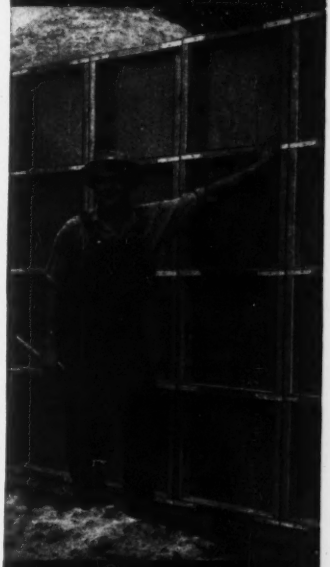

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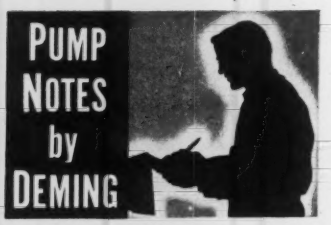

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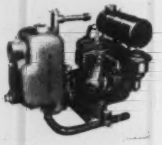

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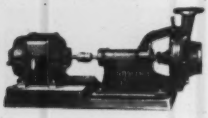

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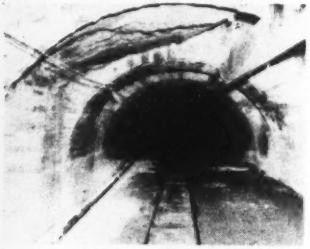

TWO MILES at the discharge end are 20 x 16 ft.

Tunnel 8 mi long ready for Peruvian hydro plant

Moyopampa Tunnel, an 8-mile conduit to deliver water for a 60,000-hp addition to Peru's Lima Light & Power Co. system, is said to be the longest tunnel in South America. Located 25 miles northeast of Lima, it was completed on Apr. 22 of this year after 962 days of tunneling. Six miles of the delivery tunnel are 9 x 12 ft in section; the downstream two miles are 20 x 16 ft.

The total length was divided into four sections; and four access adits totaling 570 ft were driven to tunnel line—one at about the midpoint of each section. The total construction force was also divided into four groups; a group camped at the portal of each adit.

When all four adits had been finished, main tunnel driving began on eight headings—in both directions from each of the adits. Job-built jumbos mounting four 3½-in. automatic feed drifters were used in the drilling. About 150,000 cu meters of rock were excavated; 449,200 carloads of muck were hauled out by electric locomotives.

High pressures in the rock caused frequent rock bursts which required cessation of excavation while the dangerous areas were lined with concrete. The 9 x 12-ft section was excavated full face with drilling rounds having from 20 to 32 holes 8 ft deep. Tunneling in the 20 x 16-ft section was done in two steps: an 8 x 10-ft pilot bore was driven first, then enlarged.

The tunnel has a 0.275% slope. It leads from Santa Eulalia River to a forebay from which water drops 1,550 ft to the power house turbines through two 4-ft dia penstocks 2,500 ft long.

Work started on the $7,500,000 project in June 1947. The first job was building some 12 miles of road, and warehouses and construction camps. Completion is scheduled for next year.

Contractor on the project has been Christiani & Nielsen, Engineers and Contractors, S. A. Design was done (as has been all Lima Light & Power Co. work since 1926) by the Swiss firm of Motor Columbus, with Pablo Boner its Peruvian representative.

This information was supplied from the Lima office of the Gardner-Denver Western Hemisphere Co. whose compressors and compressed-air tools were used on the project.

Marshall Plan figures now almost $11 billion

December authorizations brought the Marshall Plan total for the calendar year 1950 to $2,621,500,000, and the cumulative total—from the inception of the aid program April 3, 1948, through December 31, 1950—to $10,643,900,000. Purchase approvals announced through February 6 have raised the cumulative figure to $10,851,998,000.

Approximately 50 percent of the dollar value of the December figure was for industrial items. Food and agricultural commodities represented nearly 43 percent; ocean freight and ship disbursements, nearly six percent; and technical services, about one percent. The dollar breakdown was: Industrial commodities, $96,400,000; food and agricultural items, $80,900,000; ocean freight, $10,700,000; ship disbursements, $300,000; and technical services, $2,100,000.

The countries which received new purchase approvals during December were: Austria, Belgium and Luxembourg, Denmark, France and her territories, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, The Netherlands, Norway, Por-

tugal, Sweden, Trieste, Turkey, and the United Kingdom. France received $63,100,000; the Federal Republic of Germany received $59,900,000; and The Netherlands was third with $20,300,000.

Foreign Briefs

Colombian steel mill—Salem Engineering Co. of Ohio, has submitted to the Colombian government a new proposal for construction of the steel mills of Paz del Rio, a project to produce 60,000 tons of steel a year and to include beehive coke ovens, blast furnaces, Bessemer converters, rolling mills for structural pieces, rods and profiles. Cost of this mill would be $20,000,000.

Austria helps Australia—The state works and housing minister, P. J. Hilton, has announced that the Queensland government had accepted a bid for 200 houses from Osterreichischen Holzbauverband, (Austrian wood building association) Linz, Austria. Mr. Hilton said the government proposed to accept a tender from the same company for 800 more houses on completion of the present contract. The company would bring its own workers.

Aluminum hangar—One of the first hangars to be built of aluminum alloys is going up at the London Airport. It will provide about 5,400 sq ft of floor space in three bays, each 150 ft wide and 120 ft long. The contractors, S.M.D. Ltd., Slough, Buckinghamshire, also built the "Dome of Discovery" for the 1951 Festival of Britain.

Bangkok harbor—A $4,400,000 harbor development contract for Bangkok, Thailand, has been awarded to the Amsterdam Ballast Co. The scheme provides for deepening the channel to the Gulf of Siam so that vessels larger than 6,000 tons can reach Bangkok. This will reduce the cost of rice exported from Thailand.

"Come over into Macedonia and help us"—With the aid of the U. S. Army Engineers and under the sponsorship of the Marshall Plan, all main lines of the Greek State Railroads are now operating for the first time since World War II. Reconstruction was accomplished under great difficulties. In the meantime, Athens has obtained the services at the Precipitation Control Co. of Phoenix, Ariz., for a rain-making project under ECA auspices and the supervision of the U. S. Army. Owing to drought, at present the ancient city's water mains are dry 20 hours a day.

In new construction or modernization—

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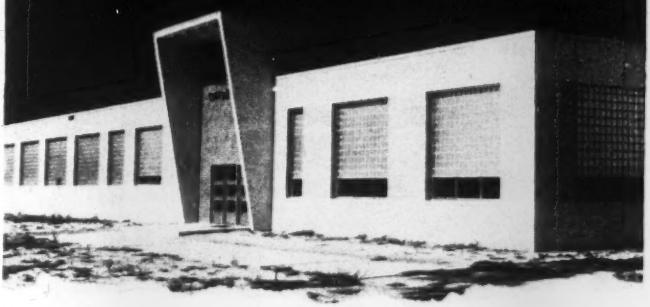
IN THIS NEW building of Pinecrest Cotton Mills, Inc., Pine Bluff, Arkansas, PC Soft-Lite* Prism Glass Blocks were adopted as an integral part of the building's architecture. They provide abundant daylighting, softly diffused for employee eye comfort; their high insulating value contributes to efficient temperature and humidity control, so essential in a textile mill. Architects: Hardy & Shumacher, Kansas City, Mo. *T. M. Reg. Applied for.



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Western Hills Pumping Station

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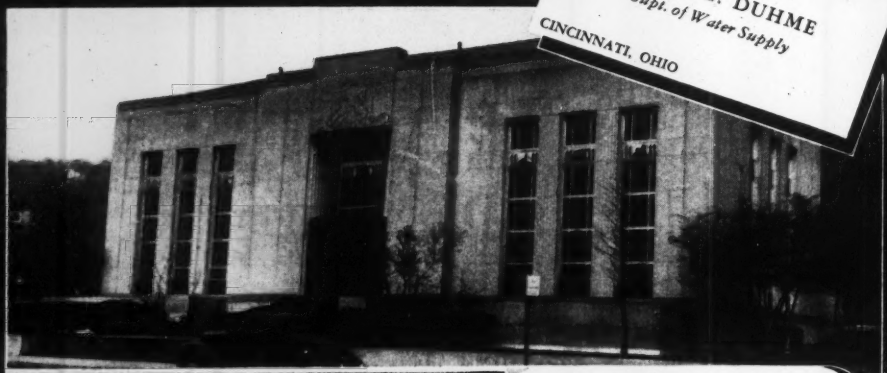
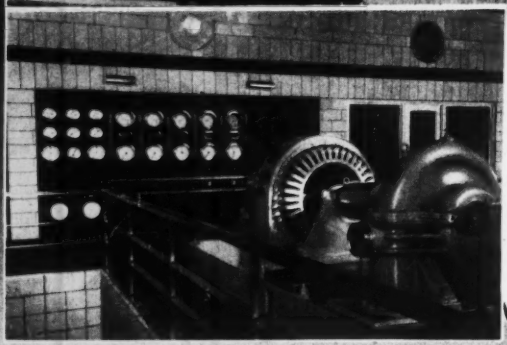
Supt. of Water Works
CINCINNATI, OHIO

MR. R. E. DUHME
Supt. of Water Supply
CINCINNATI, OHIO





Builders Equipment furnished for the Western Hills Pumping Station:

24" x 12" VTS4 Venturi Tube with Type M Register-Indicator-Recorder.

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Special 30" Chronoflo Summation Indicator to indicate total flow through VTS4 Venturi Tubes.

Chronoflo Telemeter Indicator-Recorders for Storage Tank Water Level.

The supplying of water for Cincinnati, Ohio is complicated by serious geographical problems, many of which are solved by the Western Hills Pumping Station. This modern booster plant, with its maximum capacity of 30 MGD, pumps to storage tanks at Ferguson Road and Mt. Airy, at times operating against elevation differentials of over 500 feet and pressures as high as 240 psi. This plant, engineered by the Department of Works, is well equipped to supply the communities in the hilly regions west and north of the City: Price Hill, College Hill, Westwood, Cheviot, and many others. To monitor the flows through the pumping station, an extensive system of Builders Venturi Meters with Chronoflo Summation Indicator has been installed. Also of great importance in the operation of this plant are the Builders Chronoflo Telemeters which indicate and record the water levels in the Ferguson and Mt. Airy storage tanks.

For Bulletins and information on Builders Water Works Equipment, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.

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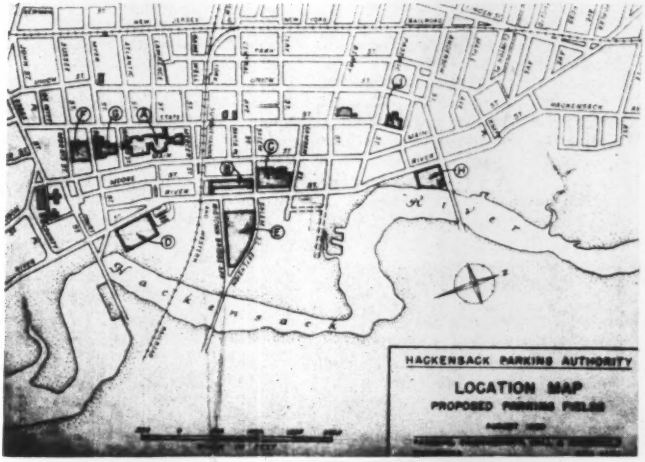

MAP SHOWS the 2,905 new parking spaces in Hackensack's shopping district.

Hackensack, N. J., takes radical steps to cure its parking problems

The city council and parking authority of Hackensack, N. J., population 29,207, have just adopted a 2-year, $2,000,000 self-amortizing program calling for large interior parking lots, and provision of modern parking facilities near a 1-mile stretch of the chief business thoroughfare of Bergen County.

The parking authority will operate the parking areas, as shown on the accompanying map, as agent for the city under a lease for just enough to meet amortization and interest on the bonds. Revenue from parking charges in excess of that will go to the city as profit.

Stuart D. Currier II, Hackensack's city planner, said that present parking facilities on or near Main Street can accommodate 10,100 cars. New parking plan calling for 9 areas adjacent to Main street will provide 2,905 additional spaces, making a total of 13,005 spaces, enough for many times that number of cars as they come and go in the course of a shopping day.

Traffic and parking developments

Jacksonville, Fla.—A proposal that Jacksonville construct an underground parking lot in the downtown area to serve also as an air raid shelter has been made to city council by Safety Commissioner Emory H. Price. The project would be constructed under Hemming Park and the site of the old Windsor Hotel. Funds would be borrowed from the RFC. The city's parking meter department reports that collections during 1950 totaled $138,940, of which $88,930 came from the 1,329 parking meters while $50,010 came from minor traffic fines.

Boston, Mass.—The Board of Real Estate Commissioners has taken by eminent domain the block bounded by Berkeley, Clarendon and Providence streets and St. James Avenue, Back Bay, as a site for a 600-car municipal parking garage. The land taken—a block of 67,000 sq. ft.—wipes out about $540,000 in taxable property. Land near Post Office square has also been taken for a similar purpose.

Augusta, Me.—The Kennebec River splits Augusta in two. The one-street business district is on the valley floor between steep hills and the river. Thousands of cars and trucks funneling into the area every day over a dozen arteries formerly were squeezed into the narrow street. Motorists crossing the river had to use the only vehicular bridge, a 60-year-old structure with two lanes. Sometimes stalled autos stretched back for more than a mile from each end of the bridge. A new $3,000,000 bridge was completed several months ago and ended the traffic jams. It looks as if the state's share of the cost will be paid off by toll charges in 20 years. The tollgate receipts will hit more than $50,000 the first year, according to officials.

Fort Wayne, Ind.—City plan commission has proposed an off-street parking program to cost at least $1,000,000. It would provide for either two garages and one parking lot, to cost $1,842,000 and accommodate 591 cars, or for one garage and two parking lots, to cost $1,440,000 and accommodate 794 cars.

Troy, N. Y.—The widening of some streets in Troy, N. Y., during 1951 to ease the traffic problem is under study by city officials. City Engineer Ralph G. Champagne and his staff have begun a study of which streets may be widened.

Chicago, Ill.—Plans for seven off-street parking garages in the Loop area of Chicago have been approved by the traffic committee of the city council. Ordinances for the construction of the parking garages have been ordered prepared. The new parking units will be financed by a $15,000,000 bond issue. Federal aid will be sought for erection of the garages in such a manner that they could be used as air raid shelters if the emergency should arise.

Jefferson City, Mo.—Plans for a huge underground garage on state property just northeast of the capitol have been drawn by Marcel Boulicault, St. Louis architect. It could house 625 cars and would double as a bomb shelter. Governor Forrest Smith said he will forward the garage proposal to the House appropriations committee with specific request for an appropriation.

Brooklyn, N. Y. City—A new progressive traffic signal system was put into operation recently on Prospect Avenue by the Department of Traffic as the first step in a comprehensive program to facilitate traffic movement on the borough's heavily traveled thoroughfares. The new signal system, covering almost the entire length of Prospect Avenue between Fourth Avenue and Ocean Parkway for a distance of one and one-half miles, provides for a steady movement of traffic at a set average speed of 23 miles per hour. Vehicles proceeding at the prescribed rate of speed can travel the entire distance without being stopped by red lights. The improvement, a check shows, has resulted in a reduction in vehicular delays of from 15 to 20 percent.

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MEN AND JOBS

Frederick Pavlicek, Jr., senior industrial code engineer of the New York State Department of Labor, has transferred to become assistant technical director of the State Building Code Commission. A graduate of Cornell University, he has been associated with the department since 1935, excepting for four years of military service. During World War II he was chief engineer of the assembly and repair department of the U. S. Naval Air Station at Quonset Point, R. I.

John P. Riley, civil engineer and director of development of the New York City Housing Authority, in a move for greater efficiency, has been appointed by the Board of Education to the new position of coordinator of school construction. Mr. Riley, a 1922 civil engineering graduate of Cornell University, will take a year's leave of absence from the housing authority where he has served since 1939 both as construction deputy and as chief engineer.

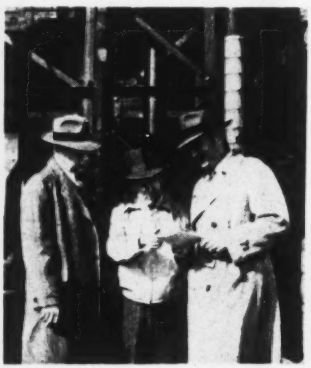
Ronald M. MacKinnon, on the engineering staff of Halifax, N. S., about 20 years, the last 8 as works commissioner, has retired. A graduate of Nova Scotia Technical College, Halifax, in 1912, he had been acting and city engineer of Sydney, N. S., about 20 years before moving to Halifax. His successor as works commissioner is **Arthur C. Harris**, who, a graduate of Nova Scotia Technical College, joined the Halifax engineering staff 13 years ago, and had been deputy works commissioner the last 10 years. **E. C. Thomas**, a divisional engineer on the staff has been named deputy.

Brig. Gen. Don G. Shingler has been appointed Missouri River division engineer of the Army at Omaha, Neb. He succeeds **Gen. S. D. Sturgis**, transferred to command of the 6th Armored Division in training at Fort Leonard Wood, Mo.

F. W. Beard has become a partner in Freese, Nichols, and Turner, consulting engineer, Houston, Tex.

William T. Field Associates, Inc., is the new name of an engineering firm in Watertown, N. Y., which has been known as Field, Emerson & Morgan Inc., since 1943, and prior to that, William T. Field Engineers, Inc., since 1929. William T. Field, civil engineer of about 45 years' experience, is president and Charles J. Elliott secretary. It is one of the oldest established engineering firms in Northern New York and has engineered the construction of many village water systems and other projects.

John F. Tidwell has been named New Castle County, Del., building inspector for a two-year term. Mr. Tidwell recently retired after 30 years service with the Delaware State Highway Department.



Outlining plans for cooperative research work treatment of phenol wastes from coke-plant operations at Hamilton, Ohio, of Armco Steel Corp., are: L. F. Reinartz, assistant vice-president of Armco; A. T. Griffin, technical director, Wallace & Tiernan Co., Inc.; and Edward J. Cleary, executive director and chief engineer of the Ohio River Valley Water Sanitation Commission, Cincinnati.

Col. William H. Mills has become district engineer of Walla Walla district, Corps of Engineers, at Walla Walla, Wash. He succeeds Col. William Whipple, who was assigned to the Industrial College of the Armed Forces at Fort Leslie J. McNair, Washington, D. C. Colonel Mills, a graduate of the U. S. Military Academy in 1926, commanded the 46th Engineers in the South Pacific.

Willard W. Lauer is chief engineer for Foley Brothers, Inc. on the $60,000,000 project at Chuquicamata, Chile, a sulphide plant being erected for the Anaconda Copper Mining Co. He is a 1916 civil engineering graduate of Carnegie Institute of Technology. Later he took a master's degree at Illinois. He has been construction engineer, project manager and district manager for various companies.

William J. Powers, 76, recently observed his 50th anniversary with the Sanitary District of Chicago, where he is now senior assistant civil engineer in charge of surveying. He surveyed the Calumet-Sag channel. For many years he has worked in the district's Illinois Valley division on crop and topographical surveys in connection with lawsuits against the district for land damage.

Carl E. Fritts has been named a vice-president of the Automotive Safety Foundation in charge of engineering. He received his civil engineering education at Washington State College, and served 20 years with the Washington State Highway Department in highway planning, construction, maintenance, traffic engineering and administration.

Worrell F. Pruden has been named assistant chief engineer of Columbia Steel Co., subsidiary of U. S. Steel Corp. He went to Columbia Steel from Consolidated Western Steel Corp., a sister subsidiary, at Los Angeles, where he had been chief engineer since 1945. He received his degree in engineering at the California Institute of Technology. In 1933 he was a surveyor for the Los Angeles Flood Control District. In 1934 he joined Consolidated Steel Corp., a predecessor of Consolidated Western, as a structural designer and was appointed chief estimator in 1939.

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EDUCATION and RESEARCH

The engineering manpower shortage grows as military demands increase

Reports from engineering schools indicate that current graduates are getting jobs quickly as the shortage of engineers continues. Here are some of the reports concerning that subject and the current speed-up of courses:

University of Nebraska—Most of the 122 engineers who got their degrees at mid-year are already at work. Dean Roy M. Green says his office has received business addresses for two-thirds of the new graduates.

Drexel Institute of Technology—The faculty and trustees have adopted plans to permit the entrance of a section of its 1951 freshman class at the beginning of the summer quarter next June.

University of Wisconsin—Graduating engineers are faced with a war boom job problem—not where to find one but which to take. Prof. H. G. Goehring, director of the placement service, says that a very large number of representatives of industry have visited the engineering college in the last few months to interview the 220 engineers just now being graduated.

University of Pittsburgh — The school of engineering will conduct a regular 12-week summer semester from June 19 to Sept. 7 for all 4 classes.

Polytechnic Institute of Brooklyn—John W. Andrews, director of placement, says the 500 men to receive diplomas in June will have an unlimited choice of openings.

Worcester Polytechnic Institute—Freshmen were admitted at the beginning of the spring semester, Feb. 8, and they will continue work through the summer so as to merge with the sophomore class in the next academic year.

Illinois Institute of Technology—Of the 550 who received degrees Jan. 27, nearly 25 percent have been called for military or naval service. The other 75 percent have been snapped up by engineer-short industry.

Rensselaer Polytechnic Institute—In July the institute will adopt a year-around course of instruction based on the quarter system, replacing the fall-spring semester plan. Students may enter at the opening of any quarter.

Denver University—Winter quarter enrollment of engineering students is down about 12 percent from the fall quarter. Practically all of the fall graduates have been placed.

University of Colorado—Colorado turned out more than 600 engineers last June but will graduate only half as many the next time. Most of the 1950 graduates have jobs.

Eastern colleges which have announced that they are not planning to adopt a 3-term-a-year, accelerated wartime program include Yale, Princeton, Columbia, Brown, Harvard, Tufts and M.I.T.

Engineering jobs beckon to women

There is more and more discussion about the need and opportunity for women in engineering and this subject is increasingly in the news.

Dean John R. Dunning of the school of engineering, Columbia University, says that Columbia is giving strong encouragement to women to enter upon an engineering career. "The present situation," says Dr. Dunning, "provides for women an unusual opportunity in engineering work, and they can assist vitally in the national defense program."

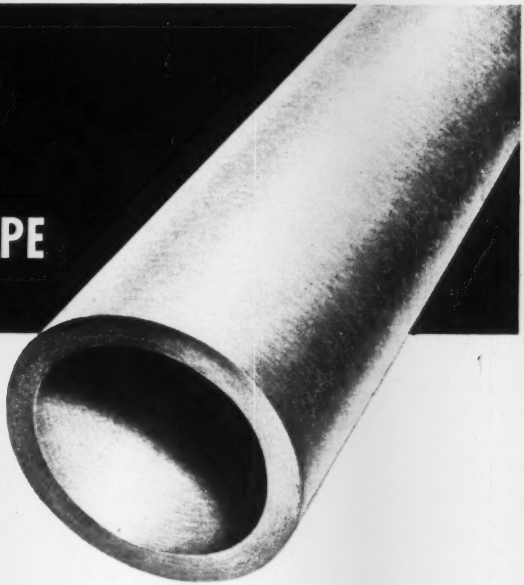
Raymond D. Meade, placement director at Illinois Institute of Technology, says that industry's ever-increasing demand for engineering college graduates has forced employers to seek women engineers for the first time—because of a shortage of this type of production personnel.

The Cooperative Education Division of the American Society for Engineering Education has recommended that women be trained on a technical, sub-professional level in engineering trades to fill gaps left by men entering military service.

The division, meeting at the University of Florida in Gainesville, recommended a two-year course in the fields of drafting, lab techniques, computing and tabulating of technical engineering data and other related subjects. No academic degrees would be offered to the women trainees but diplomas would be awarded.

Norman H. Getchius, manager of the Jersey City office of the N. J. State Employment Service, says that in order to meet the future demand for trained engineers, it appears advisable that an increasing number of young women take engineering courses. Employers who heretofore have refused to hire female engineers are today actively seeking them and even offering them a bonus to accept employment.

The inside story of "Century"® ASBESTOS-CEMENT PIPE



BEFORE you specify pipe for water mains, be sure to consider the *inside*, as well as the outside. Here's what you'll find inside "Century" Asbestos-Cement Pipe:

A SMOOTH, CLEAN BORE THAT STAYS THAT WAY! —"Century" Asbestos-Cement Pipe is formed on a smooth, steel mandrel—the pipe's interior takes its surface from this . . . permanently smooth! (Williams and Hazen Constant "C" is conservatively placed at 140 for Asbestos-Cement Pipe.)

A NON-TUBERCULATING SURFACE! —Tuberculation, one of the pipe enemies from within, first increases friction, then reduces flow area. This cannot happen with "Century" Asbestos-Cement Pipe. It is entirely non-metallic. Initial flow capacity remains constant!

Installation crew laying "Century" Pipe through wooded area.

A SURFACE THAT RESISTS CORROSION!—Though corrosion is usually an *external* enemy of pipe, certain combinations of water chemicals, together with electrolysis, can bring about internal pipe corrosion and deterioration. "Century" Asbestos-Cement Pipe is entirely mineral in nature—is immune to electrolysis—resists all corrosion factors, both internal and external!

AND CONSIDER THE OTHER FEATURES OF "CENTURY" ASBESTOS-CEMENT PIPE: "Century" Pipe is exceptionally strong, yet, light in weight. It can be handled easily, laid quickly, without special laying equipment. The "Century" Simplex Couplings are of the same Asbestos and Cement composition as the pipe—permit rapid, easy laying of both straight runs and curves up to 5° deflection per pipe length. And, so permanently strong and unchanging is "Century" Pipe, that it can be recovered and laid in its original pressure class!

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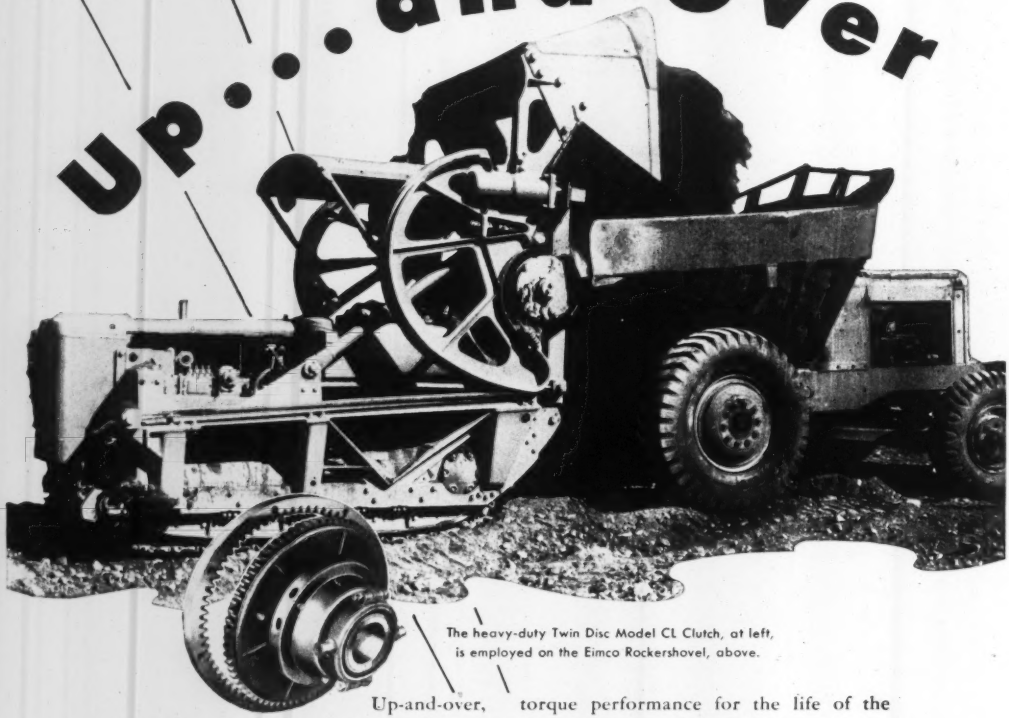
Up . . . and Over



The heavy-duty Twin Disc Model CL Clutch, at left, is employed on the Eimco Rockershovel, above.

Up-and-over, for a 10 to 15-second digging and loading cycle . . . that's the 104 Eimco Rockershovel, with its famous rocker-arm method of discharge.

And on this work-horse unit, as on so many leading makes of construction equipment, you'll find Twin Disc Clutches transmitting the power smoothly and positively.

Employed on the Rockershovel is the compact but mighty Twin Disc Model CL Clutch. This clutch deservedly has earned a reputation for full-horsepower, full-torque performance for the life of the equipment. Moreover, the simplicity of design makes points requiring adjustment or lubrication readily accessible.

The single, one-point adjustment makes it a simple matter to keep this clutch in proper adjustment—without special tools.

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MEETINGS

Prof. William H. Thoman, Civil Engineering Department, University of Colorado, has been elected president of the Colorado Section of the American Society of Civil Engineers. Other officers are: vice-president, August Ahlf, engineer, Denver office, U. S. Bureau of Reclamation; secretary-treasurer, Terry J. Owens, city engineer, City and County of Denver.

Herbert F. Darling has been elected president of the Buffalo, N. Y., Section, American Society of Civil Engineers. Other officers are: Vice-president, Robert T. Moore; secretary, John R. Campbell; treasurer, William G. Seyfang; directors, Bernard R. Fuller and Paul E. Neilson.

New officers of the Illinois Society of Professional Engineers are: L. D. Hudson, president; **A. C.** Kessell, vice-president; L. F. Ryburn, secretary, and David Abbott, treasurer. L. K. Crawford is chapter representative.

Royal L. Brockob, general contractor, has been reelected for his second term as president of the Builders Association of Chicago. Other officers reelected are: E. H. Marhoefer, Jr., vice-president, and Arthur H. Wells, treasurer.

The Engineering Association of Nashville, Tenn., has elected and installed the following officers: President, Joe L. Booker; vice-president W. F. Akin, and secretary-treasurer Charles Dahlinger.

Stephen C. Bunting has been elected president of the Albany, N. Y., Society of Engineers. Other officers: Vice-presidents, Herman A. Bergstrom, Henry S. Cloyes and Thomas C. Pillsworth; librarian, Edward K. Rice, and secretary-treasurer, James D. Gayle.

Members of the Northeast Chapter, Pennsylvania Society of Professional Engineers, have offered their services in regional defense programs. R. J. Wilson, president of the chapter, said auxiliary electric power, emergency housing, fire-fighting, water supply pollution, sewage disposal, storage and demolitions are items that might require the study and action of professional engineers in the event of an enemy attack with atomic weapons.

Professional Engineers of Oregon, at a recent annual election, voted down a proposal to authorize its board of trustees, at its discretion, to affiliate with the National Society of Professional Engineers. The proposal was on the election ballot and required a two-thirds majority to become effective. A margin of only nine votes defeated the issue. Hilbert S. Johnson, general division manager of Portland General Electric Co. was elected president of the Oregon group. W. C. Williams, Salem, was named vice president, and R. S. Shoemaker, Portland, treasurer. On the board of trustees are F. R. Schank and Will J. Kollas, Portland; Walter W. Larson, Albany; R. S. Daniels, Medford, and George W. Schwartz, Salem.

Robert E. Lee, Jr., Dayton, president of the Ohio section of the National Association of Sanitarians, said his group would ask the 1951 Ohio Legislature to enact legislation to have all city sanitarians in the state registered and certified to "professionalize" their status. Lee said three other states—California, New Jersey, and New York—now have such laws.

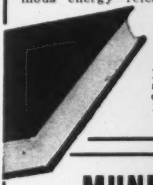
Ira Koger has been elected president of the North Florida Chapter of Associated General Contractors, Lewis Clayton was elected vice-president and Robert H. Jacobs was named secretary-treasurer.

CALENDAR

Associated General Contractors of America, annual convention, Hotel Statler, Boston, Mass., Feb. 26-March 1.
Midwest conference, Building Officials and Inspectors, Purdue University, La Fayette, Ind., Feb. 26-28.
American Concrete Pipe Association, Waldorf-Astoria Hotel, New York City, March 1-3.
American Society for Testing Materials, spring meeting. Netherland-Plaza Hotel, Cincinnati, Ohio, week of March 5.
American Road Builders Association, Schroeder Hotel, Milwaukee, Wis., March 12-14.
American Railway Engineering Association, Chicago, Ill., March 13-15.
N. J. Sewage and Industrial Wastes Association, Haddon Hall Hotel, Atlantic City, N. J., March 14-16.
Structural Engineering Conference, University of Florida, Gainesville, Fla., March 16-17.
National Housing Policy Conference, Jefferson Hotel, St. Louis, Mo., March 19-20.
Illinois Section, A.W.W.A., LaSalle Hotel, Chicago, Ill., March 28-30.
N. Y., State Association of Highway Engineers, Rochester, N. Y., March 28-30.
New York Section, A.W.W.A., Hotel Ten Eyck, Albany, N. Y., April 5-6.
N. J., Society of Professional Engineers, Haddon Hall, Atlantic City, N. J., Apr. 6-7.
Concrete Reinforcing Steel Institute, annual meeting, The Homestead, Hot Springs, Va., April 16-21.
American Water Works Association, annual conference, Miami, Fla., April 29-May 4.
Materials Handling Exposition and Conference, International Amphitheater, Chicago, Ill., April 30-May 4.
California Sections, American Society of Civil Engineers, The Ahwahnee, Yosemite National Park, Calif., May 3-5.

THE EFFECTS OF ATOMIC WEAPONS

1 A timely survey presenting the results to be expected from the detonation of atomic weapons. The book gives you an understanding of the effects of this enormous energy release when used as a weapon of war, as a basis for the development and administration of protective measures for personnel and property. **U. S. Atomic Energy Commission and U. S. Department of Defense. 456 pages, 100 illus., $3.00**



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2 A thorough and up-to-date treatment of the principles and practices of public health engineering. Includes fundamentals of disease communication and its control and describes sanitary control measures applying to a wide variety of situations with which you must cope. **By V. Ehlers and E. Steel. 4th edition, 530 pages, 144 illus., $6.50**

HANDBOOK OF RIGGING

3 Condensed into this one book are all the tips, methods and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations — with the transportation and handling of heavy machinery —with the erection and demolition of smallest size structures. **By W. Rossnagel. 321 pages, over 300 illus., $4.75**

CIVIL ENGINEERING HANDBOOK

4 New third edition covers fundamentals, theory, and practice of civil engineering. Helps you handle all kinds of civil engineering jobs. Ten big sections discuss everything from city surveying, welding and riveting. **Editor-in-Chief, Leonard C. Urquhart, Consulting Engineer, New York, N. Y., and Newark, N. J. Former Colonel, Corps of Eng'rs and Prof. of Structural Eng'ring, Cornell Univ. 970 pages, over 900 illustrations, tables, and diagrams, semi-flexible cover, $8.50.**

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OBITUARY

Alvin S. Cutler, 71, professor emeritus, who retired in 1947 after 40 years of service to engineering education at the University of Minnesota, Institute of Technology, died recently. In 1905 he got his civil engineering degree from the University of Minnesota and after two years of professional practice he returned to the university as instructor in civil engineering. He was head of the department from 1943 to 1945. His specialty was railroad location and operation. He served as consultant and expert witness on a number of railroad problems throughout the country.

Wendell P. Brown, 84, one of the oldest members of the Cleveland, Ohio, Engineering Society, died in Grosse Point Park, Mich., Jan. 31. He was a graduate of Sheffield Scientific School, Yale University, 1890. He went to Cleveland that year and joined the engineering staff of the King Bridge Co. With that company he designed and built bridges in various parts of the country, for railroads and municipalities.

John E. Zimmer, 71, retired engineer and Illinois state architect, died at Springfield, Ill., Feb. 3.

Roger S. Ruffin, 61, civil engineer in charge of the lands division of the San Diego, Calif., Gas & Electric Co. engineering department, died Jan. 29. He started with the company as a surveyor in 1916 and formerly was a civil engineer and surveyor for the federal government in Arizona. As one of the utility company's first surveyors, Mr. Ruffin pioneered in the laying of the gas and pipe line surveys in northern San Diego County, and became an authority on the county's topography. At the time of his death he was director of all survey and easement work for the utility company.

F. Arthur Cary, 54, superintendent of public works at Fairport, N. Y., died Feb. 1 in Rochester. Under his direction the Fairport sewage plant was enlarged, and an incinerator and new streets were built.

Owen B. French, 85, died in Lakewood, Ohio, Feb. 1. He was an 1886 graduate of Case Institute of Technology. He served for a number of years with the U. S. Coast and Geodetic Survey, and was second in command of the Wellman Polar Expedition. His major scientific achievements included the primary triangulation of the Pacific coast from the 39th parallel to Puget Sound in 1915, and the fixing of the latitude and longitude for the Yerkes Observatory and the U. S. Naval Observatory. He was professor of geodetics at George Washington University until 1933.

L. C. Harrington, 70, dean of the school of engineering at the University of North Dakota since 1932, died at Pittsburgh, Pa., Feb. 3. He was a civil engineering graduate of the University of Michigan, 1907. Before going to Grand Forks, N. D., in 1912, he was professor of geology and engineering at Western Maryland.

William MacGregor Scrimgeour, 81, engineer and contractor, died Jan. 31 in Washington, D. C. Born in Glasgow, Scotland, he went as a youth to Camden, N. J., where his father engaged in the shipbuilding business. In 1915 he established his own company in Washington, and in 1936 his two sons joined him as partners.

Alfred Smart, 56, publisher of Esquire, Inc., New York, a graduate in municipal and sanitary engineering, University of Illinois, 1917, died in Chicago Feb. 4. After graduation from college he served as a civil engineer in Milwaukee, Cleveland, and in 1920-21 with the Chicago Sanitary District. During the first world war he was with the 313th Engineers.

Ernest S. Mattice, 80, former general contracting engineer for the Dominion Bridge Co., died at Montreal, Que., Feb. 1. He was president of the Structural Engineering Co., Ltd. A graduate of McGill University, he built the Cornwall Canal and the Welland Canal locks.

Marine Corps commissions—The Marine Corps has announced that, beginning this summer, it will commission men without prior military training. Applicants must be college graduates or seniors in accredited colleges, less than 27 years of age. Those accepted will be enlisted and sent to Parris Island for a ten-week intensive "boot camp." Graduates of this course will be commissioned as second lieutenants in the Marines and sent to Quantico for a five-months Basic Office School. The Marines have their own Combat Engineers. At their peak in 1945, the Marines had eight battalions overseas and two training battalions in this country. While this course is primarily for line officers, certain graduates may be assigned to engineers and artillery. Full information may be obtained by writing to The Commandant of the Marine Corps, Headquarters Marine Corps, Washington 25, D. C.

deep water or
swamp—

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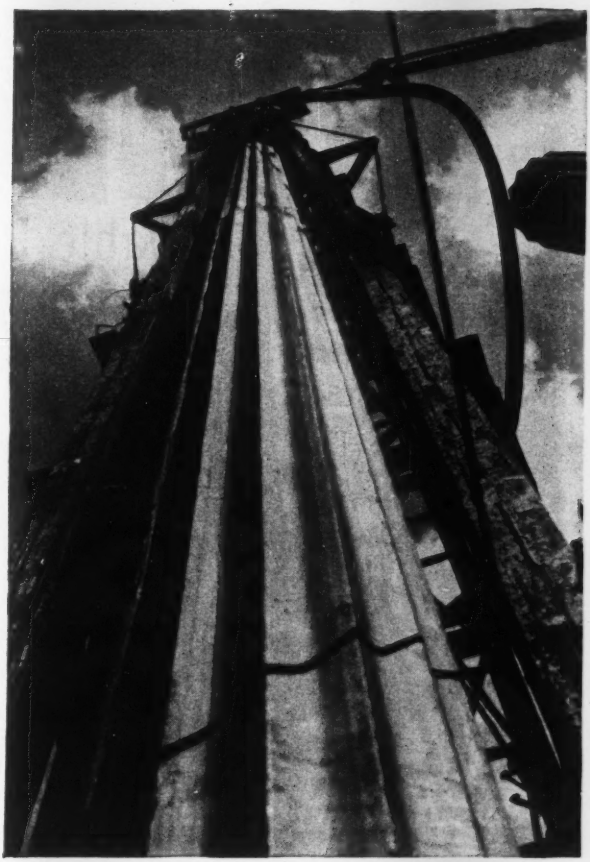
tapered steel piles

BRIDGE foundations often pose tough problems. No exception was the construction of the 900-foot trestle-type bridge across the Tuckahoe River on Maryland State Route 328.

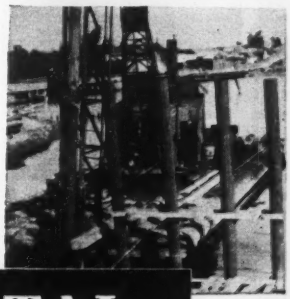
Here, engineers faced a 3-way foundation problem: deep water . . . swamp areas with soft layers of alluvial mud . . . and the need for a full 18-foot clearance above mean tide in the channel area. Careful studies proved Monotube tapered steel piles to be both the ideal *and* the lowest-cost solution to an unusual problem.

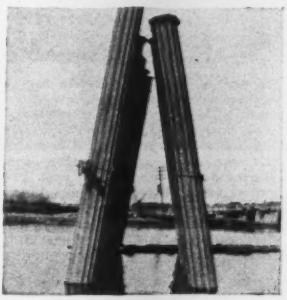
Rugged Monotubes, cold rolled and fluted, offered the extra columnar strength and stability that meant sound construction with a minimum number of piles. Light in weight, easy to handle, and extendible right on the job, Monotubes could be placed and driven *fast* with average driving equipment. Moreover, the wide variety of Monotube diameters made it easy and economical to obtain the required column strength at *any* location . . . deep water or soft mud.

Monotubes come in lengths, gauges, sizes and tapers for varying soil conditions . . . save time and money in all kinds of foundation work. For complete, helpful data, write The Union Metal Manufacturing Company, Canton 5, Ohio.



Looking at 65 feet of Monotube pile straight up from the water. Approximately 10,000 feet of 7 gauge and 3 gauge piles were used for the Tuckahoe River bridge, built for Maryland State Roads Commission by Tidewater Construction Company, under direction of Walter C. Hopkins, Deputy Chief Engineer.





Left: Welding extensions to tapered portion . . . a big time-saving.

Right: Twelve Monotube piles driven for a double bent . . . strong, rigid, good for years.

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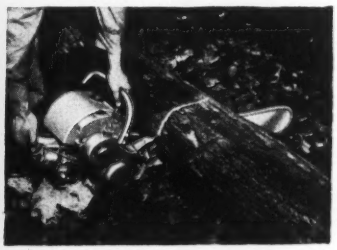
Pump it out, fast Stop water from slowing up jobs with Homelite Carryable Pumps. One man can pick up a Homelite, carry it and put it right where you want pumping action. Starts instantly. Fastest self-priming. 28 foot suction lift. Handles up to 15,000 gallons an hour, and keeps seepage down to strainer level automatically.



Off to a quicker start Save time in clearing out the site of a job with Homelite Gasoline Chain Saws. With one of these saws, one man can do the work of two men and in much less time. Cuts trees up to 36". Cuts fast, smoothly and easily on all cuts . . . notching, felling, bucking and undercutting.

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UNIT PRICES BID BY CONTRACTORS

Water works system, Hallandale, Fla.

Thirteen firms submitted bids to the City of Hallandale, Fla., Jan. 16, 1951, on the city water works system. The project was bid on in four parts: Part I, the water distribution system; Part II, elevated tank and tower; Part III, wells and appurtenances; and Part IV, the water treatment plant.

Low bid for part I was $479,291.50, which was 1.7% below the next to low bid and 50% below the high. Seven companies, six from Florida and one from Texas, presented bids.

Among the three bids on the 200,000 gallon elevated tank and tower, the low bid of $49,885 was awarded the contract. It was 23.7% below the next to low bid and 28% below the high.

The work on the 10" wells, 100 feet deep, and appurtenances was awarded to the low bid, $12,133.32, which was 0.8% below the next to low bid and 60% below the high. Five firms bid.

Contract for the water treatment plant, with a capacity of 200,000 gallons daily, was won by a bid of $226,500. It was 13.6% above the low bid, 6.8% above the next to low bid, and 16.8% below the high.

The job is located in Hallandale which is approximately 18 miles from Miami. Transportation to the job is available by railroad, highway and water. Briley-Wild Associates of Daytona Beach, Fla., are the consulting engineers. Work was begun on all 4 parts of the project on Jan. 20, 1951, and must be completed on parts I and IV in 365 calendar days, on part II in 450 calendar days, and on part III in 180 calendar days.

Wage rates prevailing in the Miami area are: ironworkers, $2.35-$2.50; carpenters, $2.50; bricklayers, $2.60; common laborers, $1.00.

Only Allegheny Asphalt & Paving Co., Inc., of Miami Beach, Fla., bid on all 4 parts, with $999,462.63 as the total bid.

Bidders on part I were:

1 R. E. Vaughan, Inc., Miami, Fla. (Contract)	$479,291.50
2 Joe Reinertson, Miami	487,454.25
7 Allegheny Asphalt & Paving Co., Inc., Miami Beach	720,048.70

Items	Quantity	Unit prices 1 C	2
CIP, f & i, 16"	1,075 lf	$8.30	$7.20
14"	3,975 lf	7.20	6.40
12"	3,275 lf	5.10	5.30
10"	16,675 lf	3.90	4.25
8"	10,700 lf	2.95	3.25
6"	65,650 lf	2.05	2.35
4"	23,250 lf	1.45	1.75
2"	17,700 lf	0.88	1.00
Galvanized st p, f & i, 2"	15,000 lf	0.75	0.85
1"	300 lf	0.45	0.50
CI fitting, special, f & i	50 T	340.00	325.00
Gate vlv, box, f & i, 16"	1 ea	420.00	450.00
14"	1 ea	310.00	350.00
12"	2 ea	290.00	220.00
10"	11 ea	145.00	180.00
8"	8 ea	97.00	115.00
6"	80 ea	67.00	75.00
4"	31 ea	46.00	55.00
2"	55 ea	30.00	30.00
Fire hydr, f & i	129 ea	139.00	127.00
Hose vlv, 2½", f & i	9 ea	40.00	50.00
Constr vlv manh	2 ea	150.00	175.00
Cut-in to existng line	1 ea	50.00	50.00
Service connection complete, 3"	6 ea	300.00	350.00
1½"	2 ea	140.00	125.00
1"	30 ea	80.00	70.00
¾"	1,070 ea	49.00	30.00
Railway cros, No. 1	ls	.....	1,980	600.00
No. 2	ls	.....	2,175	700.00
No. 3	ls	.....	2,970	800.00
No. 4	ls	.....	2,175	700.00
No. 5	ls	.....	2,255	600.00
Waterway cros	ls	.....	12,500	13,500
Test, sterilization of exist mains	ls	.....	100.00	1,000
Pavm removal, replace, conc	sy	180	7.50	6.00
Asphalt	sy	1,600	2.00	2.00

Bidders on part II, 200,000-gal elevated tank and tower included:

1 Chicago Bridge & Iron, Atlanta, Ga. (Contract)	$49,885
2 Hammond Iron Works, Warren, Pa.	61,750
3 Allegheny Asphalt & Paving Co., Inc., Miami Beach	64,400

Bids on part II were given in lump sum.

Items	Quantity	Unit prices 1 C	2
Drill 10" well to 100' depth, includ 80' of casing, dr shoe, 8 hour test & steriliz	4 ea	$1,627.98	$1,718
Drill 10" hole	lf + or −	5.90	6.00
Casing, 10", f & i	lf + or −	7.00	13.35
Add'l test, f	hr + or −	10.00	6.00
Well pump complete, f & i, No. 1, 3, 4, motor driven	3 ea	1,215.40	1,145
No. 2, dual dr	1 ea	1,975.20	1,927

Bidders on part III, wells, were:

1 Layne-Atlantic Co., Orlando, Fla. (Contract)	$12,133.32
2 C. B. Maxson, Oakland Park, Fla.	12,234.00
5 Allegheny Asphalt & Paving Co., Inc., Miami Beach	19,468.93

Bidders on part IV, 200,000 gd treatment plant, included:

1 Allegheny Asphalt & Paving Co., Inc., Miami Beach	$195,545
2 Thos. Bryan & Assoc., Houston, Texas.	210,982
3 Powell Bros., Inc., Fort Lauderdale, Fla. (Contract)	226,500
5 Higgins, Inc., Sarasota, Fla.	264,680

Bids on part IV were given in lump sum.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Conn., Norwalk—B.A. 2/27—At office City Clerk, City Hall, South Norwalk, Contr. 1, rehabilitation sedimentation tanks, Bids 1/30 rejected; Contr. 2, sewage treatment plant imprvs., addns., alterations. Plans deposit $10, for Contr. 1, $25 for Contr. 2. Metcalf & Eddy, 1300 Statler Bldg., Boston, 16, Mass., consult. engrs. CD 1/15.

Mass., North Adams—B.A. 2/28—At office H. A. Galipeau, comr. P. Wks., City Hall, 830 ft. 72 in. reinf.-con. drain from Ashland St. to south branch of Hoosac River, etc. Plans deposit $10. Metcalf & Eddy, Statler Bldg., Boston, Zone 16, engrs.

LOW BIDDERS—BUILDINGS

Town, School Bldg. Comn., West Springfield, Mass., rejected bids Feb. 1, Tatham School, Laurel Rd. and Westfield Ave., WEST SPRINGFIELD, MASS. $300,000. CD 1/22.

CONTRACTS HEAVY CONSTRUCTION

Thomas W. Watkins & Son, Inc., 79 Elm St., Amesbury, Mass., Contract Awarded. $277,613, highway F 319 (2), Stoddard, NEW HAMPSHIRE. Dpt. Pub. Wks. & Hys. State House, Concord, N. H.

† **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. Contract Awarded. $829,000, pier rehabilitation, U. S. Naval Supply Depot, DAVISVILLE, R. I. Pub. Wks. Office, 495 Summer St., Boston, Mass. Bids Jan. 19, Awarded Feb. 2. CD 1/16, under LB.

CONTRACTS—BUILDINGS

Arlex Realty Trust, 4 Ivy Circle, Arlington, Mass. Contract Awarded. $300,000. 3 story, brick 21 masonry APARTMENT units, Massachusetts Ave. near Appleton St., ARLINGTON, MASS. Robert E. Bessette, 4 Ivy Circle, Arlington, Mass.

Frankini Constr. Co., Ins., 26 Mystic Ave., Medford, Mass. Contract Awarded. $750,000. SCHOOL, Warren and Oak Sts., FRAMINGHAM, MASS. Town, Supt. Schools, Union St., Framingham, Mass. Awarded Jan. 30. CD 1/22, under LB.

Bond Bros., 77 Ferry St., Everett, Mass. Contract Awarded. $90,000. gas mfg. PLANT, off Eastern Ave., MALDEN, MASS. New England Gas Products, Inc., 40 Central St., Charlestown, Mass.

Wm. H. Porter Co., Inc., 84 Arsenal St., Watertown, Mass. Contract Awarded. $400,000. 1 story, 23x 300x280x320 ft., steel, masonry WAREHOUSE, Irving St., WATERTOWN, MASS. Star Market Co., 283 Walnut St., Newton, Mass.

Elci Co., 16 Fowler Ct., New London, Conn. Contract Awarded. $150,000. FACTORY, MONTVILLE, CONN. Robertson Paper Box Co., Inc., Montville, Conn. Fletcher Thompson, Inc., 211 State St., Bridgeport, Conn., archts.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **D. C., Wash.**—B.A. 2/26—Bureau Pub. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va., gravel base course 1.62 mi. roads in Fort Dupont Park and part of Fort Drive, Proj. 14A1 National Capital Parks. Plans deposit $10. H. J. Speiman, div. engr.

† **Maryland**—B.A. 2/27—At office H. J. Speiman, div. engr. Bureau P. Rds., 1440 Columbia Pike, Arlington, Va.

Prince Georges Co.—rein.-con. bridge 0.069 mi. Good Luck Rd., Baltimore-Washington Parkway, Proj. 102. Plans deposit $10.

N. Y., New York—TUNNEL FINISH—B.A. 2/28—At office Chief Engineer of The Port of New York Auth., 111 8th Ave., New York, Zone 11, tunnel finish for West 179th St. Tunnel, Contr. GWB-120.017. Plans deposit $25.

Pa., Dixmont—B.A. 2/28—Dpt. Property & Supplies, 1400 N. 9 St., Harrisburg, water supply and distr. sys. at Dixmont State Hospital. Herbert R. Stokes, 412 Columbia Bldg., Pittsburgh, engr. CD 8/25/47.

† **New York**—B.A. About 3/1—U. S. Eng., 80 Lafayette St., New York, Zone 13, flood wall and levee at Wappinger Creek, Pleasant Valley. $100,000-$500,000.

Pa., Bloomsburg—B.A. 3/1—Council Chamber, Town Hall, Bloomsburg, sewage treatment plant, pumping station and sewers. Plans deposit $25; refuse and sewage sludge incinerator, appurtenances. Plans deposit $20. Gannett, Fleming, Corddry & Carpenter, Inc., 600 North Second St., Harrisburg, engr. CD 4/18/46.

BIDS ASKED—BUILDINGS

Del., Wilmington—SCHOOL—B.A. 2/28—Bd. Educ., Wilmington Elementary School 13, $645,000. George E. Pope & Albert Kruse, Elks Bldg., archts. CD 5/25.

Pa., Cheyney—POWER PLANT—B.A. 2/28—General State Auth., 18 and Herr Sts., Harrisburg, power plant and new well at Cheyney State Teachers College, general and heating contracts. $350,000. Plans deposit $10. Simons Eng. Co., 2010 Walnut St., Phila., Zone 3, engr. CD 12/21/49.

† **N. Y., Granville**—POST OFFICE—B.A. 2/28—Pub. Bldgs. Service, 250 Hudson St., New York, Zone 13, misc. repairs, etc. at U. S. Post Office.

N. Y., West New Brighton—POWER HOUSE, etc.—B.A. 2/28—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, general constr.; Contr. 2, electrical work and lighting for alterations, addns. for fire prevention work in Power House and Laundry Bldg., and Hospital Pavilions Nos. 1 to 8 (inclusive) of the Sea View Hospital, Brielle Ave. Plans deposit $10. CD 12/1/44.

▲† **N. J., Trenton**—LABORATORY—B.A. in March—Dpt. Navy Yards & Docks Annex, Arlington, Va., laboratory (high pressure blower and test wing) NOY 22367. $4,600,000. Extended date. Frank Grad & Sons, 187 Market St., Newark, archts. CD 12/20.

N. J., Moorestown—SCHOOL—B.A. About 3/1—Bd. Educ., Moorestown, elementary school and Lenola School addn. Henry W. Petty, 141 Chestnut St., Moorestown, archt. CD 12/26.

† **N. Y., West Point**—THEATER—B.A. on or about 3/1 U. S. Eng., 80 Lafayette St., New York, Zone 13, converting gymnasium to theater at U. S. Military Academy. No. Eng. 30-075-51-515. $150,000-$250,000. Plans deposit $15.

† **D. C., Wash.**—DOMICILIARY—B.A. 3/1—U.S. Eng., First and Douglas Sts., N.W. Wash. 25, D. C., domiciliary bldg. incl. site imprvs. and outside utilities at U.S. Soldiers Home. Serial No. CIVENG-49-080-51-34. Extended date. CD 12/6.

Md., Towson—SCHOOL—B.A. 3/1—Bd. Educ., Baltimore Co., Susquehanna and Washington Aves., 1 story Lutherville School, York Rd. south of Ridgely Rd. $500,000. Plans deposit $25. Wm. E. Gray, 328 N. Charles St., Baltimore, archt. CD 5/5/49.

▲ **Pa., Easton**—HOSPITAL—B.A. 3/1—Easton Hospital, 20 and Lehigh Sts., hospital. $1,100,000. Wm. H. Lee, 16 S. Broad St., Phila., archt. Charles H. Wolf, 112 S. 16 St., Phila., engr. CD 4/29/48.

N. J., Trenton—WAREHOUSE, etc.—Bids Asked—Louis Kaplan, archt., 25 N. Montgomery St., warehouse and office, for American Tile & Rubber Co., 3 Assunpink St. Approx. $82,000. Bids Dec. 28, rejected. CD 12/20.

Pa., Lancaster — MANUFACTURING — Bids Asked—R. C. A. Victor Div., New Holland Pike, Lancaster, Pa. Mfg. Bldg. 7A. Approx. $150,000. Paul Kopf, 1321 Arch St., Phila., engr.

SOON LETS CONTRACT—BUILDINGS

N. J., Atlantic City—BUS TERMINAL—A. L. Brooks, archt., 1616 Pacific Ave., soon lets contract bus terminal alterations, addns., for Lincoln Bus Terminal, 9 N. Arkansas Ave.

N. J., Princeton—PLANT—Hayden Chemical Corp., 393 7 Ave., New York, N. Y., soon lets contract Mfg. Plant Bldg. 2 addn. Approx. $82,000.

Pa., George School—PHYSICAL EDUC.—Heacock & Platt, archts., 152 N. 15 St., Phila., soon lets contract physical educ. bldg. for George School, George School. $300,000. CD 7/21/49.

LOW BIDDERS—HEAVY CONSTRUCTION

Frank Mark Co., Castor Ave. and Wingohocking St., Phila., Pa. Low Bidder. $280,732, sanitary sewers, Storm water Conduits; **Oxford Constr. Co.**, 16 S. Broad St., Phila., $79,889, intercepting chamber and appurtenant work in Packer Ave., PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila., Pa. A. Zane Hoffman, c/o owner, ch. engr. CD 3/25/46

James Julian, Elsmere, Wilmington, Del. Low Bidder. $600,704. Two-lane steel concrete structures 0.166 mi. Bradywine River Crossing, Contract 1082, New Castle Co., DELAWARE. State Hy. Dpt., Dover, Del. Bids Feb. 7. CD 1/16.

LOW BIDDERS—BUILDINGS

† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y. temporarily postponed, bids to have been opened Feb. 9 VETERANS HOSPITAL, First Ave. and 23 St., NEW YORK, N. Y. $15,000,000.

Henry A. Knott, Inc., 2107 N. Charles St., Baltimore 18, Md. Low Bidder. $568,500. Nine 1 story, bsmnt., 28x106 ft., 79x27 ft. and 29x133 ft., 60 unit brick APARTMENTS, ANNAPOLIS, MD. City of Annapolis Housing Autn., 89 College Ave., Annapolis, Md. Revised Bids. CD 1/24, under LB.

Geo. Hyman Constr. Co., 1010 Vermont Ave., Wash., D. C. Low Bidder. $544,000. 4 story, rein.-con., brick, cinder block PHYSIC BLDG. at University of Maryland, COLLEGE PARK, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 2, Md. Bids Feb. 1. CD 1/16.

Ernest Di Sabatino, 2601 W. 4 St., Wilmington, Del. Low Bidder. $365,604, GYMNASIUM and CLASSROOM addn., CAMDEN, DEL. Caesar Rodney Special School Dist., Camden, Del. CD 1/27.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Merritt-Chapman & Scott Corp.** and **Corbetta Constr. Co., Inc.**, 17 Battery Pl., New York 4, N. Y. Contract Awarded. $5,685,000. Pier 57-substructure, etc. NEW YORK, N. Y. Dpt. Marine & Aviation, Pier A, North River, Zone 4, N. Y. Bids Jan. 3. CD 1/12, under LB.

Alan Wood Steel Co., Ivy Rock, Pa. Own Forces. Approx. $34,000. water treatment plant, BRIDGEPORT PA. Fred Schoen, c/o owner, ch. engr.

CONTRACTS—BUILDINGS

Scott-Shaw, Inc., Runnemede, N. J. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, BURLINGTON, N. J.

▲ **McVaughn Constr. Co.**, 9 Woodside Lane, Riverside, N. J. Separate Contracts. $2,500,000. RESIDENTIAL DEVELOPMENT, MOORESTOWN, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archts.

Cadwallader Park Homes, Inc., Earl Cahon, pres., Market St. National Bank, Phila., Pa., Separate Contracts. $576,000. RESIDENTIAL DEVELOPMENT, TRENTON, N. J.

Thomas Pagon, Inc., 935 N. 30 St., Camden, N. J. Contract Awarded. Approx. $82,000, 1 story, 6,200 sq. ft. brick, MANUFACTURING Bldg. 51 addn., VINELAND, N. J. Kimble Glass Div., Owens-Illinois Glass Co., Vineland, N. J. Bids Jan. 24. CD 1/19.

McClain Constr. Co., Inc., 200 S. 13 St., Phila., Pa. Contract Awarded. $85,000. 1 story, 70x170 ft., block, steel, concrete U. S. Postal GARAGE, ALLENTOWN, PA. Berry Bros. Realty Co., 3908 N. Broad St., Phila., Pa. Morgan & Berry, 654 Madison Ave., New York, N. Y., archts.

Frank A. Peirce, 180 S. Main St., Ambler, Pa. Contract Awarded. $82,000. WAREHOUSE and OFFICE, AMBLER, PA. National Aeronautical Corp., Wings Field, Ambler, Pa.

E. C. Machine, Inc., 1024 N. Quebec St., Allentown, Pa. Contract Awarded. $450,000. HEALTH and PHYSICAL EDUC. bldg. BETHLEHEM, PA. Moravian College, Bethlehem, Pa. Bids Jan. 16. CD 1/31, under LB.

Potteiger Co., Inc., 327 Tulpehocken St., West Reading, Pa. Contract Awarded. $500,000. DORMITORY, CARLISLE, PA. Dickinson College School of Law, Carlisle, Pa. Gravell & Duncan, 1700 Walnut St., Phila., Pa., engrs. Bids Jan. 16. CD 1/12.

American Bridge Co., Frick Bldg., Pittsburgh, Pa. Contract Awarded, erection, fabrication steel for PLANT for Fairless Works, near MORRISVILLE, PA. United States Steel Co., 434 5 Ave., Pittsburgh, Pa. CD 2/5, under CA.

Fischer Homes, Inc., 502 W. Godfrey Ave., Phila., Pa. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Passmore St., PHILA., PA.

(Continued on page 68)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name In order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
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CD Engineering News-Record Construction Daily

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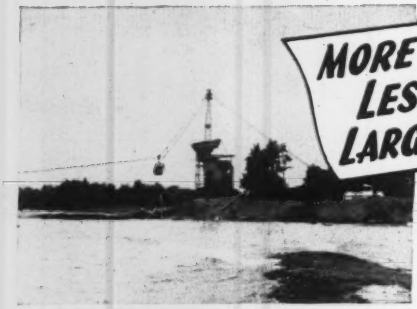

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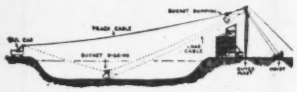

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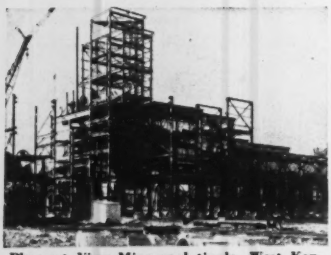

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(Continued from page 66)

▲ **McClosky & Co.**, 1620 W. Thompson St., Phila., Pa. Contract Awarded. Approx. $1,258,627. SCHOOL, Longshore and Summerdale Aves., PHILA., PA. Bd. Educ. 21 St. and Winter Sts., Phila., Pa. Bids Jan. 5. CD 1/18, under LB.

Max Chipin & Sons, 6301 N. Crittendon St., Phila., Pa. Separate Contracts. $900,000. RESIDENTIAL DEVELOPMENT, N. Algard St. and east side Walker St., PHILA. PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Mohr Lumber Co., 5324 N. 5 St., Phila., Pa. Separate Contracts. Approx. $82,000. LUMBER SHEDS and OFFICE, PHILA., PA.

Leonard H. Pietrykowski, 2015 E. Allegheny Ave., Phila., Pa. Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Richmond and Orthodox Sts., PHILA., PA. Henry S. Berg, 1419 Walnut St., Phila., Pa., archt.

Joseph Salvucci, 6601 Callowhill St., Phila., Pa. Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Haverford Ave., etc., PHILA., PA.

Robert D. Dunn & Co., 837 W. County Line Rd., Bryn Mawr, Pa. Contract Awarded. $82,000. 1 story, 40x100 ft. STORAGE bldg. PHILA., PA. Simonds Abrasive Co., Tacony and Fraley Sts., Phila., Pa.

▲† **Standard Engineering Co., Inc.**, 2129 Eye St. N. W., Wash., D. C. Contract Awarded. $1,000,000. Central HEATING PLANT and TANK FARM, CAMP DETRICK, MD. U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. CD 12/28.

▲ **Milling Engineers, Inc.**, engrs., 1911 Baltimore Ave., Kansas City, Co. Separate Contracts. $1,000,000. 2 and 3 story, 72x160 ft. feed MILL and WAREHOUSE and 6 eighteen in. storage tanks, both reinf.-con., steel, DELMAR, DEL. Ralston Purina Co., 2334 Rochester Ave., Kansas City, Mo.

Webb & Turner Blades, Seaford, Del. Contract Awarded. Approx. $82,000, block, brick, steel pickle packing PLANT, DEL. Heckman Products Corp., 811 Monroe St. N.E., Wash., D. C.

Corp., c/o Allen Hart, 913 Market St., Wilmington, Del. Separate Contracts. $500,000. RESIDENTIAL DEVELOPMENT, NEWARK, DEL.

Gordy & Son, Inc., New Castle, Del. Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Shipley Heights, Farnhurst, etc., WILMINGTON, DEL.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Ala., Harpersville—B.A. 2/28—Town, drilling, casing testing and capping 100 gpm well, Polk, Powell & Hendon, Stallings Bldg., Birmingham, engrs.

Ga., Savannah—B.A. 2/28—City, Div. A, 7,085 lin. ft. 12 and 24 in. sewers and pump station; Div. B, 8,016 lin. ft. 20 to 24-in. sewers; Div. 3, 6,500 lin. ft. sewers; Div. D 2½ m.g. daily treatment plant. Plans deposit $20, each Div. A, B, C, and $40 for Div. D. Wiedman & Singleton, Box 1878, Atlanta, engrs. Thomas & Hutton, Box 1043, assoc. engrs. CD 9/25.

Miss., Jackson—B. A. 2/28—City, sanitary sewers in Crane Creek area. Plans deposit $25. CD 8/11/50.

Ala., Aliceville—B.A. 3/2—sanitary sewer imprvs. Sherlock, Smith & Adams, 301 Washington St., Montgomery, engrs.

Ky., Lancaster—B.A. 3/2—City, Contr. 1 water treatment plant, Contr. 2, earthfill dam and reservoir, Contr. 3, water distr. sys. addn., Contr. 4, sewage collection sys. addn. Plans deposit $25. Extended date. J. Stephen Watkins, 145 E. High St., Zone 6, Lexington, consult. engr. CD 1/17.

La., Oak Grove—B.A. 3/5—West Carroll Parish Police Jury, Oak Grove, 4 bridges, earth approaches, related channel work on Big Creek and Colewa Creeks.

† **N. C., Raleigh**—CEMETERY IMPRVS—B. A. about 3/12—U. S. Eng., 308 Customhouse, Wilmington, N. C., addn. alterations to existing bldg., Raleigh National Cemetery, Inv. No. ENG 31-075-51-5.

† **Tenn., Oak Ridge** — B. A. 3/12 — U. S. Atomic Energy Comm., P. O. Box E, Attention: R. J. Dunbar, Engineering Div., Oak Ridge, construct White Oak Creek Dam, Structure 17, Inv. No. 401-51-17 A. Plans deposit $5.

BIDS ASKED—BUILDINGS

N. C., Marion—SCHOOL—B.A. 2/27—Marion City Administrative School Unit, Marion, Marion Negro School. Plans deposit $50 general contract; $30 each other contracts. Lindsey M. Gudger, 52 Carter St., Asheville, archt.

Va., Arlington—SCHOOL—B.A. 2/27—Arlington Co., Arlington, Washington-Lee Senior High School. Rhees E. Burket, 1223 Connecticut Ave. N. W., Wash., D. C., archt. CD 10/14/48.

† **Va., Norfolk**—BUILDING REPAIRS, etc.—B. A. 2/27 Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base Zone 11, repairs and renovations to various bldgs. at U. S. Naval Base, Spec. No. 26140. Plans deposit $10

† **Va., Norfolk**—BUILDING REPAIRS—B. A. 2/27—Pub. Wks Office, Headquarters, Fifth Naval Dist., U. S. Naval Base Zone 11, repairing Bldg. N-26 at U. S. Naval Base, Spec. No. 26253. Plans deposit $10.

† **Tenn., Oak Ridge**—PORTAL—B. A. 2/28—U. S. Atomic Energy Comm., P. O. Box E, Attention: R. J. Dunbar, Engineering Div., Oak Ridge, construct Portal Bldg. 8, Inv. No. 401-51-16A. Plans deposit $10.

▲ **Va., Richmond**—HIGH SCHOOL—B.A. 3/1—Henrico School Bd., Richmond, Highland Springs High School. $1,000,000. Dixon & Norman, 1103 E. Main St., archts.

Va., Floyd—HIGH SCHOOL—B.A. 3/3—At office A. S. Brockman, supt., Floyd. Floyd High School. $500,000. J. Coates Carter, Martinsville, archt.

Fla., Chattahoochee—RECEIVING WARD—B. A. 3/5—State Imprvt. Comn., Caldwell Bldg., Tallahassee, mens receiving ward bldg. at State Hospital. Plans deposit $25 Guy Fulton & Assocs., Tallahassee, state archt. CD 1/31.

† **S. C., Charleston**—BOILER HOUSE—B. A. 3/6—Dpt. Navy, Charleston, boiler house, installing new 30 h. p. boiler, pumps, fuel storage tank, underground and condensate receiver at Bldg. 1218, Naval Shipyard, NOY 24218, Spec. 26528. Plans deposit $10.

† **Tenn., Oak Ridge**—PLANT—B. A. 3/8—U. S. Atomic Energy Comn., P. O., Box E, Attention: R. J. Dunbar, Engineering Div., Oak Ridge, construct North Addn. of Bldg. 9212 at the Government-owned plant, Y-12 area, Inv. No. 401-51-18A. Plans deposit $40.

S. C., Greenville—HOUSING—B. A. 3/14—Greenville Housing Auth., 432 Perry Ave., low rent housing Proj. No. SC 4-3, consisting 54 bldgs., containing 348 dwelling units; one community bldg, incl. prescribed utilities, site imprvs. and landscape work. Plans deposit $75. Beachman Assoc., 3 West Plaza, archts. adv. ENR 2/15.

Ga., Dublin—HOSPITAL—B. A. about 5/15—Laurens Co., hospital, Approx. $300,000. Abreu & Robeson, 22 Marietta St., Bldg., Atlanta, archts.

SOON LETS CONTRACT—BUILDINGS

La., New Orleans—BUILDINGS—Southern Railway System, J. B. Akers, ch. engr., P. O. Box 1808, Wash., D. C., soon lets contract 5 bldgs. at Press St. Yard.

LOW BIDDERS—HEAVY CONSTRUCTION

Stevens & Co., Inc., Industrial Canal & Hy. 90, Box 8006, New Orleans 22, La., Low Bidder, $174,020. shell spot-dumped on Erath-Youngsville Hy., State Rte. 148, Purchase Requisition No. 25065A, S.P. 216-01-02, Vermillion Parish; **W. T. Burton**, Sulphur, La., $127,072, shell spot-dumped on Erath-Youngsville Hy., St. Rte. 236, Purchase Requisition No. 25073A, S.P. 216-02-08, Lafayette Parish, LOUISIANA, State Hy. Dpt., Baton Rouge, La. Bids Jan. 31. CD 1/18.

LOW BIDDERS—BUILDINGS

State Hy. & P. Wks. Comn., Raleigh, N. C., rejected bids Jan. 30, b. conc. binder and surf. 0.445 mi. Proj. 2290, at Snow Hill, Greene Co., NORTH CAROLINA, L. B. $62,444, est. $25,000-$50,000. CD 2/5, under LB.

Daugherty & Waters, Mercantile Bldg., Knoxville, Tenn. Low Bidder. $769,425. Negro HIGH SCHOOL, KNOXVILLE, TENN., City, City Hall, Knoxville, Tenn. Bids Feb. 8. CD 1/30.

CONTRACTS—HEAVY CONSTRUCTION

James H. Small & Co., 1538 E. Adams St., Jacksonville, Fla. Contract Awarded, $37,988, water pumps, pump enclosures and pits at Fairfax Pumping Station, JACKSONVILLE, FLA. City, City Hall, Jacksonville, Fla. Bids Jan. 18, CD 1/5.

Pigford Bros., Hy. 11 S, Meridian, Miss. Contract Awarded. $136,101. grading 4.37 mi. Proj. FI 004-2 (1), Newton Co., MISSISSIPPI. State Hy. Dpt., Jackson, Miss. Bids Jan. 30, awarded Jan. 31. CD 1/22.

Hyde Constr. Co., Hy. 80 W., Jackson, Miss. Contract Awarded. $586,980, natural gas sys., NEW ALBANY, MISS. City, New Albany, Miss. CD 4/11/50.

▲ **Robert E. McKee, Inc.**, 60 Lincoln Ave., Santa Fe, N. M. Contract Awarded, $1,400,000, storage facilities at Barksdale Air Force Base, SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. CD 1/23.

CONTRACTS—BUILDINGS

C. L. Lewis, Lynchburg, Va. Contract Awarded. $137,000. cedar chest and television cabinet PLANT, ALTAVISTA, VA. Lane Co., Altavista, Va. Awarded Feb. 3.

V. T. Myers, 911 W. 21 St., Norfolk, Va., Contract Awarded. Approx. $85,000, MACHINERY SALES and SERVICE BLDG. alterations, NORFOLK, VA. Empire Machinery & Supply Corp., 409 E. Water St., Norfolk, Va.

Frank H. Conner Co., 711 S. Tryon St., Charlotte, N. C. Contract Awarded. Approx. $500,000. 4 WAREHOUSES, CHARLOTTE, N. C. Morris Speizman, 508 W. 5 St., Charlotte, N. C.

Demetree Builders, Inc., 1617 Hendricks Ave., Jacksonville, Fla., Owner Builds. $310,000. 45 family HOMES in Glenn Lea, Subdivision JACKSONVILLE, FLA.

National Container Corp., Talleyrand Ave., Jacksonville, Fla. Owner Builds. Approx. $85,000 steel, brick LABORATORY and chemical STORAGE BLDGS., JACKSONVILLE, FLA. CD 11/3/49.

Edward S. Moore & Sons, 307 First Ave. S., St. Petersburg, Fla. Contract Awarded, $600,000. CHURCH, ST. PETERSBURG, FLA. First Methodist Church, c/o contractor. CD 1/8.

▲ **Daniel Constr. Co.**, 822 7 Ave. S., Birmingham, Ala., Contract Awarded, $20,000,000, synthetic fiber PLANT, DECATUR, ALA. The Chemstrand Corp., c/o G. W. Jones & Co., engrs., Huntsville, Ala. CD 11/10.

▲† **Butler & Cobbs**, Bell Bldg., Montgomery, Ala. Contract Awarded. Approx. $1,000,000. ADMINISTRATION-ENGINEERING bldg., HUNTSVILLE, ALA. U. S. Eng., P. O. Box 1160, Mobile, 7, Ala. Bids Feb. 2.

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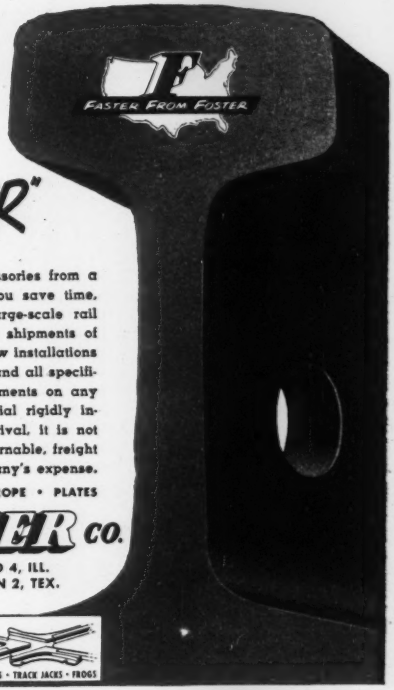

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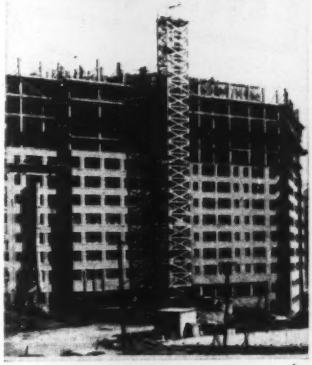

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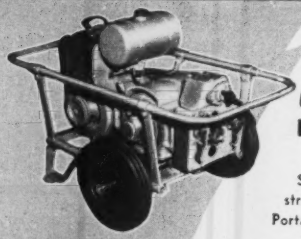

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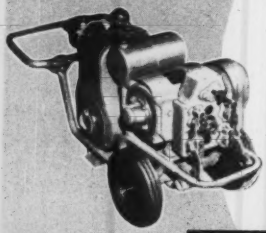

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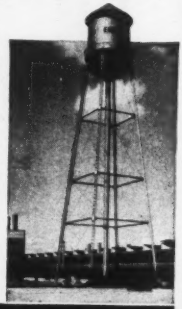

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E. Allen Sullivan & Joseph C. Sullivan, 552 S. Conception St., Mobile, Ala. Owner Builds. **$750,000,** 100 HOMES in western section of city, MOBILE, ALA.

E. O. Ross Contg. Co., Corpus Christi, Tex. Contract Awarded. $85,000. RICE DRIER, FENTON, LA. Fenton Rice Co-operative, Fenton, La.

Hardy-Stevens Co., Carondelet Bldg., New Orleans, La. Contract Awarded. **$85,000.** WAREHOUSE, NEW ORLEANS, LA. Wilfamco, Inc., 833 Howard Ave., New Orleans, La.

▲ **R. P. Farnsworth & Co., Inc.,** 1515 S. Salcedo St., New Orleans, La., Contract Awarded, **$4,924,500,** 540 unit St. Thomas St. HOUSING Proj. Ext. LA 1-9; **Robert E. McKee General Contractor, Inc.,** 806 Employers Insurance Bldg., Dallas, Tex. **$7,061,000,** 720 unit St. Bernard Ave. HOUSING Proj. Ext. LA 1-13, **$2,439,000,** 234 unit Florida Ave. HOUSING Proj. Ext. LA 1-11, NEW ORLEANS, LA. New Orleans Housing Auth., 500 California Bldg., New Orleans, La. Grand total $14,424,500. CD 1/26, 1/30 and 2/2, under L.B.

Dave Dermon Co., Dermon Bldg., Memphis, Tenn. Owner Builds. Approx. **$300,000.** RESIDENTIAL DEVELOPMENT, Kingspark, MEMPHIS, TENN.

H. Dlugach & Co., 14 N. 2nd St., Memphis, Tenn. Owner Builds. Approx. **$400,000.** 50 HOMES, east of Raleigh Rd., MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Ohio**—B.A. 3/1—U. S. Eng., Niagara and Bridge Sts., Buffalo 7, N. Y., enlarging Turning Basin, Lorain Harbor, Serial No. CIVENG 30-023-51-32. CD 8/15.

LOW BIDDERS—BUILDINGS

Collinsville School Dist. 89, Bd. Educ., Collinsville, Ill., rejected bids Jan. 25, general contract brick, concrete, steel Junior High SCHOOL, COLLINSVILLE, ILL. L.B. **$829,200.** CD 1/31, under LB

CONTRACTS—HEAVY CONSTRUCTION

▲ **M. B. Guran Coal & Contr. Co.,** 1075 River St., Akron, O., Contract Awarded, **$1,470,168,** est. $1,457,500. c. conc.-b. conc., steel beam Bridges No. SU-5-120 and SU-5-122, S. R. 5, Summit Co.*** **The Red Eagle Corp.,** 176 Walhalla Rd., Columbus, O. **$516,212,** est. $593,000, b. conc. on B-20, macad., concrete slab bridge Type **T35,** S. R. 8, Warren and Kirkwood Twps., Belmont Co.; **$221,100,** est. $236,000, grading, drainage 0.687 mi. U. S. R. 52, Portsmouth, Scioto Co.***Crawford Constr. Co.,** 640 N. Union St., Galion, O., **$153,520,** est. $158,400, c. conc. paving 4.107 mi. U. S. R. 33, Russels Point, Logan Co., OHIO. State Hy. Dpt., Columbus, O. Grand total $2,361,000. Bids 1/30. CD 1/16.

Strobel Constr. Co., 53 W. Jackson St., Chicago, 4, Ill. Contract Awarded. **$219,827,** superstructures, Laramie Ave. grade separation, CHICAGO, ILL. City, City Hall, Zone 2, Ill. Bids Jan. 30. CD 1/24. Bids July 24 rejected, L.B. **$142,696,** CD 8/4 under LB.

Morris Mickelsen Co., 21470 Coolidge St., Royal Oak, Mich. Contract Awarded. **$34,670.** Sect. 1, 6 mi. water mains; **Coolidge Constr. Co.,** Royal Oak, Mich., **$35,000,** Sect. 3 water mains, ROYAL OAK, MICH. Royal Oak Twp., Royal Oak, Mich. Bids Jan. 10.

CONTRACTS—BUILDINGS

Fort Pitt Bridge Co., 212 Wood St., Pittsburgh, 22, Pa. Contract Awarded. **$300,000.** PLANT Addns., incl. 80x60 ft. machine shop exten. Reserve St. works and 100x115 ft. foundry exten. at Poland Ave. works, YOUNGSTOWN, O. Youngstown Foundry & Machine Co., Reserve St., Youngstown, 10, O. Awarded Feb. 3.

▲ **W. M. F. Lotz Co.,** 1000 Orthodox St., Phila., Pa. Contract Awarded. **$1,000,000.** 1 story, 30,000 sq. ft., brick, steel, concrete, MANUFACTURING bldg. and OFFICE, CRAWFORDSVILLE, IND. Raybestos Manhattan, Inc., 61 Willett St., Passaic, N. J. CD 1/25.

Sherman-Olson Co., 600 W. Jackson St., Chicago, 6, Ill., Contract Awarded. Substructure only. Total est. **$400,000,** 50,000 sq. ft., FACTORY ADDN., CHICAGO, ILL., Crane Packing Co., 1801 W. Bell Plaine St., Chicago, 13, Ill. Olsen & Urbain, 5 S. Wabash St., Chicago, 3, Ill., archts. CD 6/12.

Sherman-Olson, Inc., 600 W. Jackson St., Chicago, 6, Ill., Contract Awarded. **$115,000.** FACTORY, CHICAGO, ILL. Richards Container Co., 5827 W. Lake St., Chicago, 44, Ill. Rodde Anderson & Novak, 6620 W. Diversey St., Chicago, 35, Ill., archts. Awarded Feb. 2.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Ia., Cedar Rapids—ADMINISTRATION, etc.—B.A. 2/28—City, Cedar Rapids Airport Comn., administration bldg., 90,000 gal. storage reservoir, shop, turbine fire pump, pump house addn. piping, c. conc. paving, c. conc. sidewalks, two 10 stall hangars. CD 12/21, under LB.

Tex., Fort Worth—B.A. 3/1—City, W. O. Jones, mgr., City Hall, 4,700 ft. 12 in. 3,200 ft. 16 in. c.i. pipe for E. 9 St. water main extens. $115,000. Plans deposit $15. Joe J. Rady, 811 Insurance Bldg., engr. CD 2/4/49.

Kan., Great Bend—AIRPORT IMPRVS.—B.A. 3/3—City, rehabilitation elevated water reservoir and imprvs. WW sys. at Great Bend Municipal Airport. Plans deposit $10. Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

† **Oklahoma**—B.A. 3/6—U.S. Eng., P.O. Box 61, Tulsa, main control switchboards and associated equipment, Arkansas River Watershed, Fort Gibson Dam power development, Grand (Neosho) River, CIVENG 34-066-51-42. CD 7/24.

BIDS ASKED—BUILDINGS

Ark., Little Rock—HOUSING—B.A. 2/27—Housing Auth. of City of Little Rock, 313 Commercial Bank Bldg., public housing administration low-rent dwelling units, Proj. ARK 4-8. Plans deposit $40. Wittenberg, Delony & Davidson, 402 Pyramid Bldg., Little Rock, Ark., archts. CD 5/17.

Tex., Abilene—DORMITORIES—B.A. 3/1—Board for Texas State Hospital & Special Schools, 45 and Lamar Sts., Austin, patient dormitories. $725,000. Plans deposit $25. David S. Castle Co., 1082½ First St., engr. and archt. CD 8/31.

▲ **Tex., San Antonio**—HOUSING—B.A. 3/1—San Antonio Housing Auth., 400 Labor St., Tex 6-8, 39 low cost dwellings for total 202 units for Latin-Americans. $1,300,000. Frank T. Drought, 117 W. Pecan St., engr. Ford & Rogers, Route 7, Willow Way, Nayfach-Richey Co., 715 Alamo N. Bldg., and John Marriott, 902 Frost Bldg., all San Antonio, archts. CD 1/29, under LB.

SOON LETS CONTRACT—BUILDINGS

Mo., St. Louis—PLANT—Concordia Publishing House, 3558 S. Jefferson Ave., Zone 18, soon lets contract 3 story, bsmt., 137x145 ft., rein.-con., brick printing and publishing plant addn., loading dock, etc. $750,000. Wischmeyer & Lorenz, Bd. Educ. Bldg., 911 Locust St., Zone 1, archts. CD 1/3.

LOW BIDDERS—BUILDINGS

▲ **L & R Constr. Co.**, 6609 Latta Pl., St. Louis, 21, Mo. Low Bidder. $1,014,950 base and $1,486,250 alternates, rein.-con., brick, steel, SENIOR HIGH SCHOOL, KEOKUK, IA. Independent School Dist. of Keokuk, Roy L. Krueger, pres. Bd. Directors, Keokuk, Ia. Bids Jan. 30. CD 2/7, under LB.

▲ **City**, Albuquerque, N. M. rejected bids, CIVIC AUDITORIUM, ALBUQUERQUE, N. M. L. B. $1,066,481, est. $835,000. Gordon Ferguson, 111 S. Amherst St., Albuquerque, N. M., archt. CD 12/14.

CONTRACTS—HEAVY CONSTRUCTION

J. W. McNeill Constr. Co., Investment Exchange Bldg., Sioux City, Ia. Contract Awarded. $78,798. 1,975 ft. 72-in. precast concrete storm sewers in 27 and Lowell Sts., SIOUX CITY, IA. City, Sioux City, Ia. Bids Jan. 26, awarded Feb. 2. CD 1/7.

Utility Contg., Inc., 610 N. Main St., Wichita, Kan. Contract Awarded. $75,000. 2½ mi. rein.-con. storm sewers in Central and West Sts., WICHITA, KAN. Sedgwick Co., Wichita, Kan. Bids Jan. 30. CD 1/24.

▲ **Brown Lite Co.**, 4107 E. 11 St., Tulsa, Okla. Contract Awarded. Approx. $3,500,000. 278 mi. 10 in. oil pipe line from Borger, TEXAS to Yale, OKLAHOMA. Phillips Petroleum Co., Bartlesville, Okla. CD 5/26/50.

Doerfler Constr. Co., 2514 S. Agnew St., Oklahoma City 8, Okla. Contract Awarded. $39,982, est. $40,900. water mains in Skyline Addn. at 36 and Portland Sts., OKLAHOMA CITY, OKLA. City, City Hall. M. B. Cunningham, city engr. Awarded Jan. 30. CD 5/15/50.

Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, Tex. Force Account. $225,000. Unit 12, addnl. unit of changing from pole to underground cable, CORPUS CHRISTI, TEX. CD 1/9/50.

† **Tellotte Electric Co.**, 435 Main St., San Antonio, Tex. Contract Awarded. $60,000. electric sys., area, extens. FORT SAM HOUSTON, TEX. U. S. Govt. Contg. & Purch. Br., Fort Sam Houston, Tex. Bids Jan. 30. Awarded Feb. 1.

Wylie Bros., Box 4025, Albuquerque, N. M. Contract Awarded. $362,562, est. $379,605, paving Dist. 57-A, 100 square blocks, ALBUQUERQUE, N. M. City, Albuquerque, N. M. Awarded Feb. 7. CD 6/30.

CONTRACTS—BUILDINGS

D. Shanedling, 404 Minnesota Federal Bldg., Minneapolis, Minn. Owner Builds. $500,000. 1 story, 360x604 ft., irregular shape SHOPPING CENTER, incl. stores, etc. Portland Ave. and Belt Line in Bloomington, MINNEAPOLIS, MINN. CD 1/25.

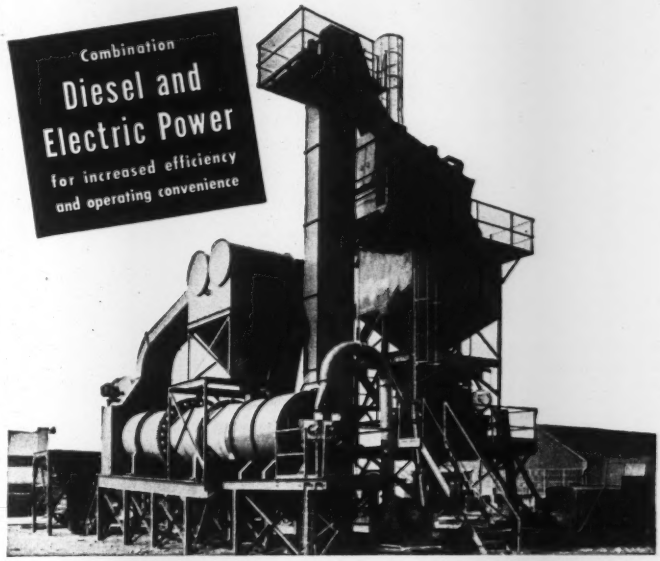
▲ **Woermann Constr. Co.**, 3800 W. Pine Blvd., St. Louis 8, Mo. Contract Awarded. Est. $1,022,000. 5 story, 58x79 ft., stone, brick, tile, rein.-con. CHURCH addn., alterations Grand and Washington Blvds., ST. LOUIS, MO. Third Baptist Church, Dr. C. Oscar Johnson, pastor, 620 N. Grand St., St. Louis, Mo. L. Baylor Pendleton & Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis 1, Mo., archts. CD 5/16/49.

▲ **Lily-Tulip Cup Corp.**, Hy. Flishman, secy., College Point, N. Y. Owner Builds. $2,000,000. 1 story, 450x1,000 ft. PLANT, air-conditioned, Glenstone between George St. Rd. and overpass, SPRINGFIELD, MO. CD 2/7.

Thompson, Haight & Keister Co., 2006 N. Portland St., Oklahoma City, Okla. Contract Awarded. $235,981, 200.8 mi. rural distr. lines, McPherson, Logan, Thomas and Cherry Counties, NEBRASKA. Custer Public Power Dist., Broken Bow, Neb. Bids Jan. 26. CD 1/15.

Cooper-Bessemer, Mt. Vernon, O. Contract Awarded. $776,250. POWER PLANT, JEMEZ, N. M. City, City Hall, Jemez, N. M. Awarded Jan. 29.

▲ **Lembke Constr. Co.**, 1519 N. 5 St., Albuquerque, N. M. Contract Awarded. $1,847,175, general constr.; **Glenn Hickman**, 768 Cerrillos Rd., Santa Fe, N. M., $668,342, plumbing, heating, ventilating, HOSPITAL,



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SANTA FE, N. M. St. Vincent's Hospital, 210 E. Palace Ave., Santa Fe, N. M. CD 12/27, under LB.

Wamix, Inc., c/o Trinity Industrial Dist., Dallas, Tex. Purchase and Hire. $92,500. concrete mixing PLANT, DALLAS, TEX. CD 1/19.

Adams Co., Builders, 4001 Westheimer St., Houston, Tex. Contract Awarded. $288,500. 2-unit INDUSTRIAL bldg. HOUSTON, TEX. Adams Co., 4001 Westheimer St., Houston. J. M. Gault, 717 W. Alabama St., Houston Tex., engr. Awarded Jan. 31.

Brace & Carruth, 706 Garden Oaks St., Houston, Tex. Day Labor. Approx. $340,000. 20 DWELLINGS, HOUSTON, TEX. CD 4/13.

Lockhart & Warren, 2nd Natl. Bank Bldg., Houston, Tex. Contract Awarded. $305,600. 45 DWELLINGS, HOUSTON, TEX. Miles Strickland, 2nd Natl. Bank Bldg., Houston, Tex.

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex. Contract Awarded. Approx. $2,000,000. cotton oil MILL, cattle feeding pens, mixing plant for feed, LUBBOCK, TEX. Western Cotton Oil Co., c/o Anderson-Clayton & Co., Lubbock, Tex. Awarded Feb. 3.

Armour Drive Constr. Co., 808 Prairie St., Houston, Tex. Contract Awarded. Approx. $300,000. SUPERMARKET, TEXAS CITY, TEX. J. Weingarten, Inc., 808 Prairie St., Houston, Tex. CD 12/10/48.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Oregon**—B. A. 3/1—U. S. Eng., 628 Pittock Block, Portland, Zone 5, bank protection works along left bank of South Santiam River at Ketcham Location, approx. 2½ mi. south of Crabtree, Linn Co., Serial No. CIVENG 35-026-51-187.

Ore., Dallas—B. A. 3/5—City, City Hall, sewage treatment plant. $190,000. Plans deposit $30. Stevens & Koon, Spalding Bldg., Portland, engrs. CD 11/16.

BIDS ASKED—BUILDINGS

Calif., Berkeley—SCHOOL —B.A. 3/8—Bd. Educ., Rose and Walnut Sts., 3 story, rein-con., steel, concrete school. Plans deposit $40. Miller & Warnecke, 507 Howard St., San Francisco, archts. CD 11/17/48.

SOON LETS CONTRACT—BUILDINGS

Calif., Los Angeles—AUDITORIUM, etc.—Mc Cullock Motors Corp., 6101 Century Blvd., soon lets contract 2 story rein.-con. auditorium cafeteria and storage bldg. Approx. $300,000. Becket & Assocs., 5657 Wilshire Blvd., archts.

LOW BIDDERS—HEAVY CONSTRUCTION

Dpt. Airports, 5800 Avion Dr., Los Angeles, Calif., rejected bids Jan. 23, two hangers at Los Angeles International Airport, LOS ANGELES, CALIF. L. B. $344,897. CD 2/1, under Lt.

† **R. E. Ziebarth**, 21205 Balsa St., Torrance, Calif. Low Bidder, $348,975, est. $200,000, installing electrical facilities at Rocket Engine Test Station Edwards Air Force Base, Eng 04-353-51-44, MUROC, CALIF., U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Feb. 2. CD 1/24.

LOW BIDDERS—BUILDINGS

† **John H. Sellen Constr. Co.**, 228 9 Ave. N., Seattle, Wash. Low Bidder, $588,249, seven 8-family row-type family QUARTERS and one 6-family row type QUARTERS with utilities, Serial No. ENG 45-108-51-95, FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Feb. 6. CD 1/15.

Bd. Educ., Rose and Walnut St., Berkeley, Calif., rejected bids Garfield Junior High SCHOOL, BERKELEY, CALIF. L. B. $778,924. CD 1/29, under LB.

CONTRACTS—HEAVY CONSTRUCTION

Chicago Bridge & Iron Works, White-Henry-Stuart Bldg., Seattle, 1, Wash. Contract Awarded. $34,110, 50,000 gal. water tank at City Light Substation, Bothell, SEATTLE, WASH. City of Seattle, County-City Bldg., Seattle, Zone 4, Wash.

† **Schmitt Steel Co.**, 2765 N. W. Nicolai St., Portland, Ore. Contract Awarded. $42,405, guides, frames for emergency outlet gates for Lookout Point Dam, CIVENG 35-026-51-164, Lane Co. OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Feb. 1. CD 1/16.

CONTRACTS—BUILDINGS

† **Arthur N. King**, Vancouver, Wash. Contract Awarded $161,754. steel masonry WAREHOUSE, MCNARY, ORE. U. S. Eng., 19 E. Poplar St., Walla Walla, Wash. Awarded Jan. 31.

Haddock Engineers Ltd., 1616 Greenwood Ave., Montebello Calif. Contract Awarded, $551,900, est. $450,000, 1 story, frame & stucco Laurel SCHOOL, WHITTIER, CALIF. East Whittier School Dist., 1425 E. Whittier Blvd., Whittier, Calif. Bids Jan. 25, awarded Jan. 30. CD 2/2, under LB.

ALASKA

LOW BIDDERS—HEAVY CONSTRUCTION

† **A. E. Waxberg**, Fairbanks, Alaska. Low Bidder, $255,866. Transmitter station, NENANA, ALASKA. Civil Aeronautics Admin., Anchorage, Alaska. Bids Feb. 2. CD 1/18.

LOW BIDDERS—BUILDINGS

† **Fountaine Enterprises**, Anchorage, Alaska. Low Bidder, $62,377. Repair and maintenance work at cold storage PLANT. Inv. No. 585-509-51-1, BIG DELTA, ALASKA. U. S. Army, The Pentagon, Wash. 25, D. C.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

Puerto Rico, Vega Baja—HEALTH CENTER—B.A. 3/21—Jorge J. Jimenez, comr. Interior of Puerto Rico, at office Board Awards, Dpt. Interior, Santurce, construct health center and 26-bed nursing unit. Plans deposit $50.

CANADA

CONTRACTS—BUILDINGS

C. H. Whitam Ltd., 10570 113 St., Edmonton, Alta. Contract Awarded. Approx. $500,000. 5 story, OFFICE, EDMONTON, ALTA. Royal Trust Co., 10039 Jasper Ave., Edmonton, Alta. Dewar, Cawston & Stevenson, 618 Northern Hardware Bldg., Edmonton, Alta., archts. CD 1/15.

Whitlaw Bros., 28 James St. S., Hamilton, Ont. Contract Awarded, 1 and partial 2 story, 133x23 ft., steel, concrete PLANT, HAMILTON, ONT. Donalds Ropes & Wire Cloth Ltd., 180 King William St., Hamilton, Ont. Prack & Prack, 310 Main St. E., Hamilton, archts. Awarded Feb. 5. CD 4/24/47.

Herbert Campbell, Ridgetown, Ont. Contract Awarded. $150,000. MILL, 16 rein.-con. 50 ft. high, 16 ft. diam. concrete tanks, loading ramps, 4 cleaners, offices and general equip., HENSALL, ONT. W. G. Thompson, Hensall, Ont. Awadred Feb. 7. CD 1/8.

PROPOSED PROJECTS

WATER SUPPLY

Mass., Chicopee—City, Water Dpt., 27 Tremont St., water supply sys. imprvs., 8- to 24-in. c.i. water mains, appurtenances. $400,000. Haley & Ward, 73 Tremont St., Boston, consult. engrs.

Mich., Holt—Landel Metropolitan Dist., C. W. Runyan, comr., water sys., storage and distr. facilities. $275,000.

▲ **N. C. Raleigh**—City, voted bonds Feb. 3, WW enlargement and water sys. addn. $3,118,000. CD 12/13.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, sanitary sewers in Hall Rd., Downey, $66,600; sanitary sewers in Porter Ave., Atadena, $160,000. C. E. Arnold, co. engr.

▲ **Colo., Brighton**—South Adams Co. Sanitation Dist., Adams Co., Brighton, sanitary sewerage sys., sewage disposal plant. $1,300,000. Ripple & Howe, 426 Cooper Bldg., Denver, Colo., engrs. and archts.

Colo., Denver—City and Denver Co., Dpt. Imprvts. & Parks, Denver, Southwest Sanitary Sewer Dist., sanitary sewers, appurtenances. $314,000. Terry Owens, City and County Bldg., city engr.

▲ **Ill., Chicago**—Sanitary Dist. of Chicago, 910 Michigan St., Zone 5, expansion sewage facilities. $19,000,000.

Mich., Holt—Landel Metropolitan Dist., Clair W. Runyan, comr., sewerage sys., sanitary sewers, sewage disposal plant, treatment facilities. $350,000.

N. Y., Geddes—Town, sewage pump. stations and force main. $339,600.

N. Y., Syracuse—Bd. Comrs. Onondaga Co., Syracuse, sanitary trunk sewer, $887,100.

▲ **N. C., Raleigh**—City, voted bonds Feb. 3, sewage purification $1,347,000, surf. drainage, enlargement and reconstr., $500,000. CD 12/13.

Okla., Enid—City, sewage plant, $922,250. Hudgins, Thompson, Ball, 1100½ W. Main St., Oklahoma City, consult engrs. CD 9/20.

▲ **S. C., Greenville**—City, parallel trunk lines to existing lines along Reedy River and Brushy & Richland Creeks and addnl. force mains & plants, $2,500,000. Wiedeman & Singleton, Box 1878, Atlanta, Ga., consult. engrs.

Tenn., Signal Mountain—City, sanitary sewerage sys. $325,000. Schmidt Eng., 817 Broad St., and Betts Eng. Co., 514 Lookout St., both Chattanooga, consult. engrs.

Tex., Graham—City, voted bonds, sewage disposal plant, $125,000; sanitary and storm sewer lines, $60,000.

Wis., Mazomanie—Village, sewage treatment plant. $175,300.

Ont., Toronto—York Twp., 40 Jarvis St., enlarging sewage disposal plant at Rockcliffe Blvd. to incl. aeration tanks, final settling tanks, new inlet works, $744,000 Gore & Storrie, 1130 Bay St., consult. engrs. CD 6/8/45.

BRIDGES

Washington—State Hy. Dpt., Olympia,
Watcom Co.—5 bridges on Highway 1-A, Big Lake to Blaine. $180,000. W. A. Bugge, state hy. dir.

STREETS AND ROADS

Calif., San Diego—City Council, Civic Center, imprv. Dawes, Emerald, Everts and Felspar Sts. $109,578 Alden K. Fogg, city engr.

Mo., Kansas City—City P. Wks., City Hall, Zone 6, removal street car tracks, resurf. 24 St. from Jackson to Hardesty St.; 9 St. from Broadway to Pennsylvania Sts.; Walnut St. from 15 to 20 Sts.; 10 St. from Wyandotte to Main Sts.; 9 St. from Broadway to Pennsylvania Sts., Walnut St. from 15 to 20 Sts. John E. Maring, city engr. CD 11/10/47.

N. C., Raleigh—City, voted bonds Feb. 3, 12 to 15 mi. streets. $750,000. CD 12/13.

Tex., Dallas—City, City Hall, new street in vicinity of proposed Lakewood School and bridge to be across Beads Creek. $113,000. J. T. Conroy, P. Wks. engr.

Tex., Stanton—Martin Co., Stanton, voted bonds road construction and surf. 6 mi. Precinct 1, $75,000; 5½ mi. Precinct, 2, $75,000; 6 mi. Precinct 3, $75,000; 7 mi. 4, $75,000.

Washington—State Hy. Dpt. Olympia,
Adams Co.—relocation, resurf. Lind-Ritzville Hy. $278,000.

Walla Walla Co.—surf. Pasco-Attalia, $72,500.
grading, surf. paving 5.8 mi. east and west of Wallula, $104,000.
grading 3 mi. Wallula-Oregon State Line Hy., $100,000.
W. A. Bugge, state hy. dir.

▲ **Washington**—State Hy. Dpt., Olympia,
Clallam Co.—Olympic Hy., b. conc. paving 7.6 mi. from Port Angeles to Elwha River, $116,000.
Lincoln St. (Olympic Hy.) b. conc. paving in Port Angeles between 1 and 8 Sts. $26,000.
Elwha River to Lake Sutherland, surf. 4.9 mi. $35,000.
Lake Crescent to Banes Creek, relocation 2.5 mi. $10,000.
Deep Creek to Twin, relocation 4 mi. $17,000.
Jefferson Co.—Primary State Hy. 14, construct 3.5 mi. highway between Contractor's Gulch, near Gardiner, and Discovery Bay, $821,000.
Olympic Hy. relocation and b. conc. surf. 9.2 mi. between Hoh and Bogachiel Rivers, $540,000.
Whitman Co.—Pullman East, grading, surf., paving 6.9 mi. $660,000.
Pullman west, 2.5 mi. $33,000.
Dusty South, grading, surf. oiling 3 mi. $75,000.
Tekoa-Latah, surf. and oiling 5.9 mi. $136,000.
Yakima Co.—White Pass Rd., Indian Creek-Rimrock, correct slide conditions, $60,000.
Chinook Pass Hy., rock riprap, American River to Nelson Bridge, $10,500. W. A. Bugge, state hy. dir. CD 4/26.49.

Washington—State Hy. Dpt., Olympia,
Whatcom Co.—resurf. Meridian Ave. in Bellingham from Broadway to 3 mi. beyond city limits. $102,600. W. A. Bugge, state hy. dir.

Ont., Simcoe—Norfolk Co., Simcoe, road work during 1951. Approx. $464,746. G. R. Marston, c/o owner, engr.

AIRPORTS

▲† **Kan., Wichita**—AIR BASE—Dpt. Air Force, The Pentagon, Wash. 25, D. C., air base adjacent to Boeing Plant. $37,000,000.

▲† **La., Shreveport**—AIRPORT—U. S. Eng., 300 Broadway, Little Rock, Ark., plans by Samuel G. Wiener, Commercial National Bank Bldg., and E. M. Freeman & Assoc., Texas Eastern Bldg., engrs. and archts. bldg. addns. at Barksdale Air Force Base. Over $2,000,000.

† **Mich., Battle Creek**—AIRFIELD—Dpt. Army, 172 Fighter Squadron, 2,000 ft. extensions to runways, Kellogg Field.

▲† **Miss., Biloxi**—AIRPORT IMPRVS.—Dpt. Air Force, c/o Purchasing & Contracting Office, Keesler Field, plans by Harry Inge Johnstone, Annex Federal National Bank Bldg., Mobile, Ala., Keesler Air Field imprvs., incl. 961 barrack units, mess halls, chapels, laboratories, gymnasium, theater, etc. $35,900,000. J. B. Converse & Co., First Federal Savings Bldg., Mobile, Ala., consult. engrs.

▲† **Mont., Great Falls**—AIRPORT IMPRVS.—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., runway paving $4,200,000, barracks $1,200,000, runway lights $100,000, at Air Force Base. CD 11/17.

▲ **Wash., Seattle**—HANGAR—Boeing Airplane Co., 7755 E. Marginal Way, hangar across E. Marginal Way on Boeing Field, $5,000,000.

LATIN AMERICA

Peru, La Oroya—Cerro De Pasco Copper Corp., 40 Wall St., New York, N. Y., plans zinc refinery and related facilities with daily capacity of 200 tons of refined zinc, near here. Approx. $9,000,000.

PUBLIC BUILDINGS

† **Ala., Anniston**—REPAIR SHOP—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., plans by Sherlock, Smith & Adams, 301 Washington Ave., Montgomery, repair shop at Alabama Ordnance Depot, $3,500,000.

▲ **Calif., Arcadia**—SCHOOL—Arcadia School Dist., 1000 El Monte Blvd., plans by Austin, Field & Fry, 2311 W. 3 St., Los Angeles, high school. $1,950,000 bonds voted. CD 2/6.

Calif., Fontana—SCHOOL—Chaffey Union High School Dist., Ontario, plans by Allison & Rible, 625 S. West-

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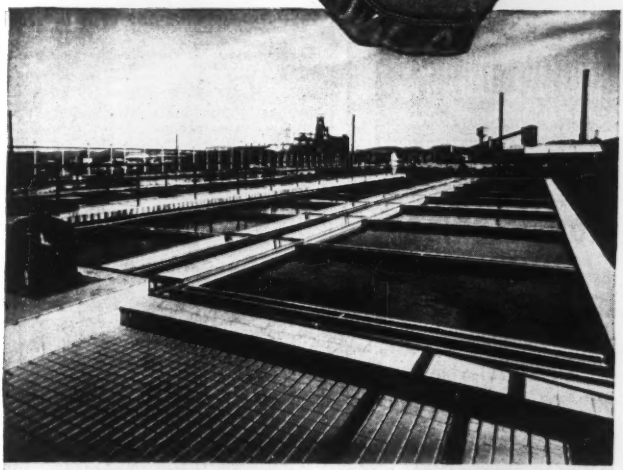

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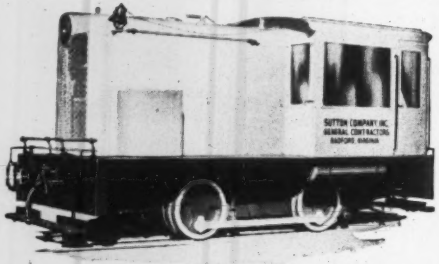

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moreland St., Los Angeles, 4 Foritana High School buildings. $501,000.

Calif., Lawndale—SCIENCE, etc.—El Camino Junior College Dist., 3031 Redondo Beach Blvd., Gardena, plans by Marsh, Smith & Powell, 208 W. 8 St., Los Angeles, 1 story, steel brick, concrete science bldg. and 1 story rein-con. library $750,000.

Calif., Menlo Park—SCHOOLS—Menlo Park Elementary School Dist., Melville J. Homfeld, supt., Menlo Park, 2 schools. $879,123

Fla., Bartow—HOSPITAL—Polk Co., Bartow, plans by A. L. Aydelott & Assocs., 2080 Peabody St., Memphis, Tenn., hospital. $700,000.

▲ Ill., Des Plaines—SCHOOL—Bd. Educ., North School Dist., c/o Central School, plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, 2 story, bsmnt., North Side Grade School, Rand and E. River Rds. $1,000,000.

▲ Ill., Joliet—ORDNANCE WORKS—U. S. Eng., 520 Merchandise Mart, Chicago, Zone 54, reactivated Kankakee Ordnance Wks. $1,000,000

Mass., Arlington—HOUSING—Town of Arlington Housing Auth., 2 Fremont Court, plans by Robert W. Blaisdell, 70 Proctor St., Roxbury, twenty-seven 2 story, bsmnt., bldgs. 54 brick, veneer apartments, Sunnyside Ave., Gardner and Summit Sts. $600,000.

Mass., New Bedford—SCHOOL—State Dpt. Educ., 200 Newbury St., Boston, plans by Raymond M. Stowell, Ned Point Rd., Mattapoisett, Textile Institute School, No. 306-7918-17. $750,000. Frank J. Leary, 197 Rockland St., South Dartmouth, consult. engr.

Mich., Detroit—WAREHOUSE, etc.—Detroit Dist. Arsenal, 28251 Van Dyke St., plans by H. E. Beyster Corp., 2100 Industrial Bank Bldg., brick, steel automotive group incl warehouse, engineering bldg., shop annex, and laboratory, $500,000. CD 3/11/45.

▲ Mich., East Lansing, Center Lansing—ANIMAL Bldg. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel, concrete animal industries bldg. Michigan State College, East Lansing $3,000,000.

▲ Minn., Winona—HOUSING—Winona Housing Auth., Winona, plans by Boyun, Schubert & Sorenson, Winona, 60 unit each 2 story, 26x90 ft. housing. $1,000,000.

▲† Mo., St. Louis—OFFICE and PRINTING—Army Records Center and Army Publications Center, c/o Army Admin. Center, 4300 Goodfellow Bldg., Zone 20, 6 story office and printing bldg. between St. Louis Ave. and Terminal Ry. west of Goodfellow Blvd. $25,000,000.

Neb., Chadron—FINE ART CENTER—State Dpt. Normal Schools, Albin Larson, secy., Lincoln, plans by S. A. Axtens, Cooper Bldg., Denver, Colo., fine arts center at Chadron State Normal College. $572,900.

N. Y., Rye—SCHOOL—City, Bd. Educ., Parsons St., plans by Warren S. Holmes Co., 2200 Olds Tower, Lansing, Mich., 2 story, bsmnt., brick, steel, concrete school. $850,000.

▲ Pa., Phila.—PRISON—Phila. Bd. County Prison Inspectors, 10 and Reed Sts., plans by Willing, Sims & Talbutt, 1700 Sansom St., prison bldg. $1,000,000 CD 4/11/46.

▲† Pa., Tobyhanna—SIGNAL CORPS DEPOT—Dpt. of Army, Signal Corps, 121 N. Broad St., Phila., plans by Gilboy & O'Malley, Inc., archt. and engr., Liberty Trust Bldg., Phila. Pa. Signal Corps Depot. $26,000,000. CD 1/31.

Tex., Falfurrias—GYMNASIUM and CAFETERIA—Brooks Co. Independent School Dist., Falfurrias, voted bonds, gymnasium, educational and recreational bldg., $350,000; cafeteria units, $400,000. Rob L. Vogler, 225 Oleander St., Corpus Christi, archt.

▲ Tex., Lubbock—HOUSING—U. S. Eng., Box 1538 albuquerque, N. M., construct, manage, finance housing for Air Force Base. $3,500,000, Parkhill, Smith & Cooper, 1006 14 St., and Atcheson & Atkinson, 204 Sanford Bldg. archts CD 12/6.

Tex., Mercedes — HOUSING — Mercedes Housing Auth., Mercedes, plans by Boese & Harkrider, T & P Passenger Bldg., Ft. Worth, 100 low cost housing units, $875,000. Chas. Melden, Edinburg, civil engr. CD 10/20/49.

▲† Va., Fort Eustis—BARRACKS, etc.—U. S. Eng., First and Douglas Sts., N. W., Wash., 25 D. C., plans by Louise A. Oliver 823 W. 21 St., and Paul D. Woodward, 616 Boush St., both Norfolk, Va., and Mills & Petticord & Assocs., 3308 14 St. N. W., Wash, D. C., barracks, 7 schools motor pools, locomotive roundhouse at Army Transportation Center $10,000,000. CD 1/5.

▲ Va., Staunton—JAIL, etc.—Augusta Co., Staunton, plans by J. L. Williams & Assocs., Marion, jail and office $407,000.

Wash., Bothell—SCHOOL—School Dist., Bothell, bond election Mar. 13, high school, $600,000. CD 2/2.

Wash., Grandview—SCHOOL—School Bd., Grandview, high school. $300,000.

Wash., South Bend—HOSPITAL—Pacific Co., Court House, plans by John Graham & Co., Dexter Horton Bldg., Seattle, Zone 4, hospital, $450,000. CD 11/16.

N. B., Fairville (Postal Dist. Saint John)—SCHOOL—Parish of Lancaster, Board School Trustees, Fairville, N. B., plans by Alward & Gillies, 1 Market Square, St. John, N. B., 19-room school with gymnasium-auditorium and stage. Approx. $500,000. CD 9/13.

N. S., Dartmouth — HOUSING — Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, 100 houses, defense housing development at H. M. C. S. "Shearwater". Approx. $750,000. P. J. Mangan, c/o owner, engr. CD 1/13/49.

Ont., Brantford—HIGH SCHOOL—Brantford Bd. Educ., Brantford plans by F. C. Bodly, 88 Nelson St., high school $970,000. CD 10/31.

Ont., Cornwall—SCHOOL—Suburban Cornwall High School Area. F. Lepage, secy., Cornwall, high school addn., St. Lawrence High School, McConnell and Second St. Approx. $400,000.

▲ Ont., Ottawa — ORDNANCE DEPOT — Secy. Defense Constr. Ltd., Ottawa, Ont., ordnance depot in Hardman's Bridge section of industrial area. Approx. $4,000,000. Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., engrs.

COMMERCIAL BUILDINGS

Calif., Los Angeles—DWELLINGS—Bowles & Co., 8941 Santa Monica Blvd., 153 frame dwellings in Tract 17129. $900,000.

Calif., Los Angeles—DWELLINGS—Pearl Park, Inc., 216 Le Doux Rd., Beverly Hills, plans by Southwest Drafting Service, 2724 W. Florence St., 117 frame dwellings in Tract 16754. $1,006,200.

Calif., Port Hueneme—DWELLINGS—Hueneme Ranchos, Inc., 509 S. Beverly Dr., Beverly Hills, plans by Major Drafting Service, 11015 S. Paramount St., Downey, 62 frame dwellings in Port Hueneme first portion of 622 unit development, $558,000.

▲ Conn., New Britain — Y.M.C.A. BLDG. — Y.M.C.A., 6 Court St., Y.M.C.A. Bldg., High St. $1,200,000.

▲ Ill., Chicago—HOSPITAL—Billings Hospital, 5801 S. Ellis St., plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., 6 story, brick, rein.-con. hospital addn. $1,000,000.

Ind., Clarksville—SCHOOL—St. Anthony's R. C. Church, Rev. Fr. Mathias Schneiders, New Albany, plans by Thos. J. Nolan, Ky. Home Life Bldg., Louisville, Ky., 2 story, brick, stone, rein.-con., structural steel parochial high school, State Rd. 62 near county line, $500,000.

▲ N. Y., New Rochelle—HOME FOR AGED—United Home for Aged Hebrews, 15 E. 40 St., New York, 16, N. Y., plans by Arthur Weiser, 20 E. 53 St., New York, Zone 22, 6 story home for aged, Pelham Rd. $1,000,000.

▲ O., Elyria—HOSPITAL—Elyria Memorial Hospital, 630 E. River St., plans by Schmidt, Garden & Erikson, 104 S. Michigan Blvd., Chicago, Ill., kitchen, cafeteria and storage wing addn. to hospital. $1,450,000.

▲ O., Euclid — SHOPPING CENTER — Corporation, c/o George Howard Burrows, Hinman & Gabriel, archts., 1621 Lee St., Cleveland, 1 and 2 story L-shaped 600 ft. long, brick, stone shopping center, Green and Olympia Rd. $2,500,000.

Ore., Lebanon—HOSPITAL—Lebanon Community Hospital, Lebanon, plans by Roald Schmeer & Harrington, Spalding Bldg., Portland, rein.-con. hospital. $685,000. CD 8/11/48.

▲ Pa., Phila.—PHYSICS—University of Pennsylvania, 209 S. 36 St., plans by James R. Edmunds, Jr., 130 Hamilton St., Baltimore, Md., physics bldg. $1,400,000. Gravell & Duncan, 1700 Walnut St., consult. engrs. CD 2/19/48.

Tex., Dallas—MERCHANDISE MART—Lowich Brothers, 1220 S. Ervay St., remodeling Butler Bros. 8 story, masonry type commercial bldg. into a Merchandise Mart, 450,000 sq. ft. floor space. $750,000.

Tex., Sherman—DWELLINGS—Syndicate, c/o Chamber of Commerce, Sherman, 37 frame dwellings, concrete slab fdn. $325,000.

▲ Alaska, Ketchikan—RESORT HOTEL—L. S. Ferris, Ketchikan, resort hotel on Bell Island. $2,000,000.

Ont., Toronto—COMMERCIAL—North American Life Assurance Co., 112 King St. W., plans by Marani & Morris, 46 Bloor St. W., exten. present bldg. by 86 ft. sect. from 2nd to 7th floors. $400,000-$500,000.

INDUSTRIAL BUILDINGS

▲ Calif., Los Angeles—PLANT—Republic Heater Corp., 2231 Randolph St., Huntington Park, 90,000 sq. ft. plant in Los Angeles International Industrial tract. Approx. $1,000,000.

▲ Fla., Pensacola—PLANT—Armstrong Cork Co., Lancaster, Pa., plant addn. $1,000,000.

Ill., Chicago—FACTORY—J. J. Tourek Mfg. Co., 2100 S. Kilbourn St., Chicago, 23, plans by A. Epstein & Sons, Co., 2011 Pershing St., Zone 9, 100,000 sq. ft., steel, concrete brick factory, $750,000.

▲ Ill., Kankakee—PLANT—Armour & Co., Union Stock Yards, Chicago, Zone 9, plans by Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, pharmaceutical research and mfg. plant. $5,000,000. CD 2/7.

▲ Ill., Madison—MILL—Dow Chemical Co., Midland, Mich., rehabilitation, imprvs., installing equip. for magnesium rolling mill and fabricating mill of plant to mfg. magnesium sheets and plates for use in airplanes, trucks, trailers, etc. $26,000,000.

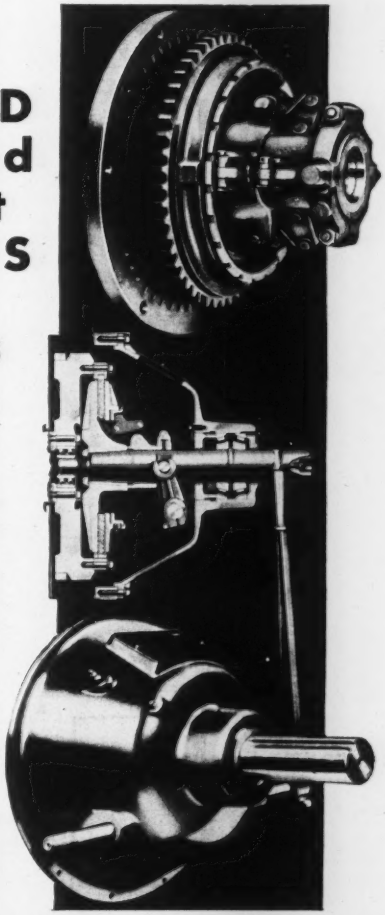
Ill., Washington Park (East St. Louis P. O.)—ASSEMBLY—Emerson Electric Mfg. Co., 8100 W. Florissant Ave., St. Louis, 21, Mo., mezzanine floor in main assembly bldg. and smaller addns. to other bldgs. for plant mfg. airplane gun turrets and aircraft fire control. Approx. $400,000.

▲ Ia., Camanche—PLANT—North American Steel Co., C. A. Depue, pres., Clinton, steel plant. $100,000,000.

▲ Ky., Central City—PLANT—Kentucky Utilities Co., First National Bank Bldg., Louisville, electrical generating plant addn., 75,000 kw. coal fired units. $10,000,000.

New

ROCKFORD Simplified Low Cost CLUTCHES *for* Power Take-Offs



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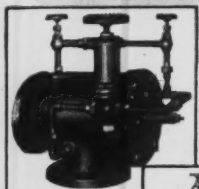
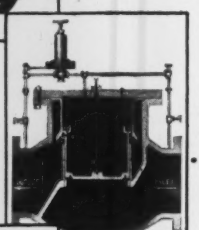
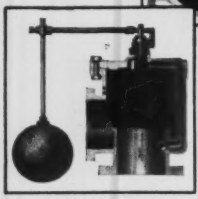


G-A Surge Relief Valve. Bulletin W-2 sent on request.



G-A Water Pressure Reducing Valve. Bulletin W-3 contains the technical information you want.



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2094 KEENAN BUILDING PITTSBURGH 22, PA.

▲ **Ky., Tyrone**—PLANT—Kentucky Utilities Co., First National Bank Bldg., Louisville, electrical generating plant addn., incl. 75,000 kw. coal fired generator units. $9,890,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs.

▲ **Mo., Springfield**—PLANT—Lily-Tulip Cup Corp., 122 E. 42 St., New York, 17, N. Y., 1 story, 450x1,000 ft., brick, concrete, steel mfg. plant, Gledstone between George St. road and Frisco overpass. $4,000,000. CD 12/19.

▲ **Neb., Scottsbluff**—PLANT—Consumers Public Power Dist., Columbus, enlarge plant bldg. and addnl. power generating equip. $1,362,840. R. L. Schacht, c/o owner, ch. engr. CD 8/2/49.

▲ **N. Y., Farmingdale**—PLANT—Fairchild Engine & Airplane Corp., Farmingdale, mfg. plant on 32-acre site. $8,000,000. CD 10/17/46.

N. Y., Olean—PLANT—Line Material Co., 800 N. 8 St., Milwaukee, Wis., plant. $500,000.

N. Y., Olean—PLANT—McGraw Electric Co., Elgin, Ill., power line distr. equip. plant, $500,000.

▲ **O., Cleveland**—PLANT—S. K. Wellman Co., Egbert Rd. and Penn R. R., plans by C. B. Rowley Assoc., Keigh Bldg., 1 story, 60,000 sq. ft. masonry, concrete plant. $1,600,000.

▲ **O., Dayton**—PLANT—Aeroproducts Div., General Motors Corp., Municipal Airport, airplane propellor plant at Municipal Airport. $2,500,000.

▲ **Pa., Wilmerding**—INDUSTRIAL—Westinghouse Air-brake Co., Wilmerding, 3 story, 400x300 ft., steel, brick, concrete industrial bldg. $1,500,000.

▲ **S. C., Harleyville**—PLANT—Giant Portland Cement Co., Harleyville, S. C., plant addn. Approx. $1,000,000.

▲ **Tenn., Oneida**—MILL—Tennessee Steel Corp., Oneida, steel mill. $10,000,000.

Tex., Fort Worth—PLANT—Lucerne Milk Co., c/o G. W. Bluethman, 3301 W. Biddison St., div. mgr. Safeway Stores, plans by W. G. Clarkson, 819 Penn St., 1 story, 40x90 ft. fluid milk plant, Conway and Hudgkins Sts., $500,000.

▲ **Tex., Gregory**—PLANT—Reynolds Metals Co., 5008 Almeda St., Houston, aluminum plant, 2700-acre site. $85,000,000. H. K. Ferguson Co., M & M Bldg., Houston, engrs. just selected for foundation layout work. CD 2/2.

▲ **Va., Norfolk-Portsmouth**—POWER PLANT—Virginia Electric & Power Co., 7 and Franklin Sts., Richmond, power station in Norfolk-Portsmouth area. $17,000,000.

W. Va., Wierton—FACTORY—Signode steel Strapping Co., 615 N. Western St., Chicago, 14, Ill., plans by Shaw, Metz & Dolio, 208 S. LaSalle St., Chicago, 4, Ill., factory addn. $400,000.

▲ **Alaska**—PLANT—Puget Sound Timber Co., Ketchikan, pulp plant on Prince of Wales Island. $35,000,000.

▲ **Newfoundland, Wabana**—MINING FACILITIES, etc.—Dominion Steel & Coal Corp., Ltd., Canada Cement Bldg., Montreal, Que., addnl. mining, loading and shipping facilities. Approx. $6,000,000.

▲ **Que., Black Lake (Thetford Mines)**—PLANT UNITS—Johnson's Asbestos Co. Ltd., Thetford Mines, plant units, incl. warehouse and crusher mill. Approx. $2,000,000. C. V. Smith, c/o owner, engr.

UNCLASSIFIED

▲ **Illinois and Missouri**—POWER TRANSMISSION LINES—Union Electric Company of Missouri, Illinois Power Co. and Central Illinois Public Service c/o Union Electric Co. of Missouri, 315 N. 12 St. Louis, 1, Mo., power transmission line to connect St. Louis, Mo. with new Electric Energy, Inc., power plant near Joppa, Ill. incl. line from St. Louis, Mo. and West Frankfort, Ill. and also between West Frankfort and new plant at Joppa, Ill. $10,000,000.

▲ **Iowa**—POWER LINES, etc.—Iowa Power & Light Co., 312 6 Ave., Des Moines, Ia., main line extens., transformers, misc. equip. in central and southwest Iowa, incl. Des Moines and Council Bluffs, $2,000,000; addnl. relays, transformers and controls, Des Moines and Clarinda, $379,700; rebuild transmission line, Red Oak to Griswold, $93,400; heavy transmission line, Council Bluffs to Glenwood, $311,000 F. A. Beatty, c/o owner, engr.—vice pres. in charge operations.

▲ **Ia., Des Moines**—COAL HANDLING FACILITIES, etc.—Iowa Power & Light Co., 312 6 Ave., Des Moines, new coal handling facilities and water cooling tower at power station. $1,283,000. F. A. Beatty, c/o owner, engr.—vice pres. in charge operations

▲ **Mass., Boston**—SUBWAY—Metropolitan Transit Auth., 31 James St., Tremont St. subway extension. $11,500,000. Praegar Maguire & Ole Singstad, 294 Washington St., consult. engrs. CD 1/21/44.

Mass., Provincetown—BATH HOUSE—State, Dpt. P. Wks., 100 Nashua St., Boston, plans by Mario V. Caputo, 6 Beacon St., Boston, 1 story, concrete bath house Province Land, $150,000.

Missouri—RURAL DISTRIBUTION LINES—Black River Electric Co-operative, Ironton, 345.5 mi. rural distr. lines 6.5 mi. transmission lines, etc. Reynolds Co. $970,000. Frank Horton & Co., Lamar, consult. engrs.

▲ **Missouri**—RURAL DISTRIBUTION LINES—Inter-County Electric Co-operative, Locking, 734 mi. rural distr. lines and 136 mi. conversions, Proj. 18 S and V Texas. $1,000,000. CD 4/7.

Missouri—RURAL DISTRIBUTION LINES — Southwest Electric Co-operative, Robert H. Cochran, mgr., Bolivar, addnl. rural distr. lines, sys. imprvs. in Benton, Camden, Dallas, Greene, Hickory and Pope Counties. $975,000.

N. C. Raleigh—RECREATION FACILITIES—City, voted bonds Feb. 3 recreation facilities, parks, playgrounds. $250,000. CD 12/14.

Oklahoma—RURAL DISTRIBUTION LINES—Caddo Electric Co-operative, Binger, 103 mi. rural distr. lines, 7 mi. tie lines and completion previously approved construction, Caddo Co. $500,000. C. C. Jones, Binger, resident engr. Frank Horton & Co., Lamar, Mo., consult. engrs.

▲ **Texas, Ohio, Louisiana**—NATURAL GAS PIPE LINES—Texas Gas Transmission Corp., Slattery Bldg., Shreveport, La., approx. 305 mi. large dimension natural gas pipe lines to increase capacity existing main line between Texas and Middletown, O., $15,250,000; natural gas compressor stations to increase capacity natural gas main line between Texas and Ohio, $10,000,000; 275 mi. large dimension natural gas line to increase capacity of main line now operating between Texas and Middletown, O., $13,750,000.

Texas—RURAL DISTRIBUTION LINES—Jasper-Newton Electric Co-operative, Kirbyville, 116 mi. rural distr. lines in Jasper, Newton, and Angelina Counties, $130,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 1/18.

▲† **Va., Yorktown**—LOADING LINE—U. S. Eng., First and Douglas Sts. N.W., Wash., 25, D. C., converting TNT loading line at Yorktown for use in illuminized explosive loading. $1,025,000. Baskervill & Son, 2313 West Cary St., Richmond, Va., in charge of plans

▲ † **Washington**—TRANSMISSION LINES, etc.—Bonneville Power Admin., P. O. Box 3537, Portland, Ore.
230-kv transmission line, Columbia-Olympia line No. 4, $5,479,000.
230-kv transmission line, Goldbar-Covington, $1,437,000.
230-kv transmission line, Grand Coulee-Snohomish line No. 2, $92,000.
230-kv transmission line, Covington-Olympia, $734,000
230-kv transmission line, Snohomish-Arlington, $262,000.
230-kv transmission line, Snohomish-Bothell, $110,000.
115-kv transmission line, Raymond-Aberdeen, $81,000.
115-kv transmission line, Tacoma loop, $113,000.
115-kv transmission line, Olympia-Shelton-Port Angeles, $23,000.
115-kv transmission line, Allyn-Kitsap, $625,000.
115-kv transmission line, Shelton-Allyn, $90,000.
switching station, Galdbar, $43,000.
switching station, Kitsap, $464,000.
Olympia terminal and auto transformer addns., $657,000.
Covington terminal and sub-station addns., $171,000.
sub-station addn., Shelton, $74,000.
sub-station addn., Aberdeen, $298,000.
system reactive facilities, Covington, $365,000.
system reactive facilities, Shelton, $71,000.
system reactive facilities, Snohomish, $162,000.
South Elma sub-station, $205,000.
Tacoma terminal, $475,000.
Cosmopolis sub-station conversion, $62,000.
communications, Grand Coulee-Snohomish, $14,000.
communications, Covington-Olympia, $20,000.
transmission line, Grand Coulee No. 5, $793,000.
transmission line, Seven Mile-Four Lakes, $112,000.
transmission lines, Hot Springs (Mont.) and Spokane, $5,916,000.
Spokane terminal, $113,000.
sub-station addn., Spokane, $848,000.
sub-station addn., Metaline Falls, $28,000.
sub-station addn., Four Lakes, $9,000.
Chewelah sub-station, $17,000.
Seven Mile switching stations, $88,000.
230-kv transmission line, Grand Coulee-Midway No. 3, $1,282,000.
230-kv transmission line, Grand Coulee-Columbia No. 4, $870,000.
230-kv transmission line, Grand Coulee-Spokane, No. 5, $1,760,000.
115-kv transmission line, Columbia-Ellensburg, $113,000.
115-kv transmission line, Tonasket-Republic, $237,000.
115-kv transmission line, Columbia-Keokuk, $110,000.
115-kv transmission line, Ephrata-Soap Lake, $112,000.
sub-station, Soap Lake, $25,000.
Ephrata addn., $50,000.
sub-station, Quincy transformers, $98,000.
sub-station, Rocky Ford, $664,000.
sub-station, Tonasket, $78,000.
sub-station, Columbia, $72,000.
communications, Grand Coulee-Midway, $38,000.
communications, Grand Coulee-Columbia, $4,000.
communications, Columbia-Ellensburg, $12,000.
series capacitators, Grand Coulee-Midway, $132,000.
conductor change on Grand Coulee-Midway, $1,143,000.
conductor change on Grand Coulee-Columbia, $253,000.
Grand Coulee auto transformers, $583,000.
reactive facilities at Columbia sub-station, $58,000.
Moses Lake transformers, $43,000.
convert Vancouver-St. Johns transmission line to 230-kv, $638,000.
Vancouver terminal station, $142,000.
road surf. and relocation of facilities, Vancouver, $200,000.
North Bonneville, site imprvs., $40,000.

Wyoming — RURAL DISTRIBUTION LINES — Wyrulec Company, Lingle, 10 mi. rural distr. lines, headquarters facilities, sys. imprvs., Goshen Co. $120,000. Walter Walking, 2640 Kearney St., Denver, Colo., consult. engr. CD 1/30.

B. C., Harmac (near Nanaimo)—WHARF—H. R. MacMillan Export Co., Ltd., 837 W. Hastings St., Vancouver, deep sea wharf, berthing 400 ft. long, 60 ft. wide, installing 2 addnl. digesters at pulp mill and build 4 large chip storage bins, $900,000.

B. C. Nanaimo—DOCKING FACILITIES—Nanaimo Sulphate Pulp Ltd., 837 W. Hastings St., Vancouver, docking facilities for ocean-going vessels, incl. wharf and new milling equipment. $900,000.

NEW ENGLAND

BIDS ASKED—BUILDINGS

Conn., Manchester—SCHOOL—B.A. 2/27—Town, Town Hall, school Broad St., Middle Turnpike, $745,000. Plans deposit $25. CD 1/6/50.

CONTRACTS—HEAVY CONSTRUCTION

The Brunalli Constr. Co., 19 Main St., Southington, Conn. Contract Awarded. $521,786. hy. and girder bridge overpassing Rte. 1, Darien, CONNECTICUT. State Hy. Dpt., State Office Bldg., Hartford, Conn. CD 1/3, under LB.

▲ **Arundel Corp.**, Pier 2, Pratt St., Baltimore, Md. Contract Awarded. $2,995,335. hydraulic fill on sections of Harborfront relocation on Rte. U. S. 1 in area about 7,193 lin. ft. with certain areas omitted, West Haven and New Haven, CONNECTICUT, State Hy. Dpt., State Office Bldg., Hartford, Conn. Bids Dec. 18. CD 1/3, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New Jersey—B.A. 2/26—Dpt. Conservation & Economic Development, 1060 Broad St., Newark, dredging of Navigation area in Glimmerglass Manasquan, Monmouth Co. CD 12/29.

† **N. J., Edgewater**—RAILROAD TRACK REPAIRS—B.A. 2/27—P. Wks. Office, Third Naval Dist., 90 Church St., New York 7, N. Y., repairs railroad tracks Naval Medical Supply Depot, NOY 23503, Spec. 25860.

† **N. Y., New Rochelle**—ELECTRONIC FACILITIES—B.A. 2/27—Pub. Wks. Office, Third Naval Dist., 90 Church St., New York, Zone 7, electronic facilities alterations, Naval Reserve Training Center, NOY 23743, Spec. 26076.

N. Y., Peekskill—B.A. 2/27—City, sewage treatment plant, on Annsville Creek. CD 12/11/44.

† **N. Y., Idlewild**—CONTROL TOWER—B.A. 2/28—At office Chief Engineer of Port of New York Auth., 111 8th Ave., New York, Zone 11, furnishing, installing utilities and control wiring and construct a parking area and road for there Permanent Control Tower at New York International Airport Contr. NYA-170.133. Plans deposit $25. CD 4/27/44.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **John Arborio, Inc.**, W. Cedar St., Poughkeepsie, N. Y. Low Bidder, $867,632. paving 3.57 mi. Palisades Interstate Parkway between Tiorati Play area and Route 6, Orange and Rockland Counties***Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., $1,896,701, 2¼ mi. Captree State Parkway between Montauk Hy. and Southern State Parkway, Suffolk Co.***Depew Paving Co., Inc., 4955 Broadway, Depew, N. Y., $373,818. parallel artery, South Parkway, Grand Island, Erie Co., NEW YORK. Bureau Contracts & Accounts, Albany, N. Y. Bids Feb. 14. CD 1/26.

LOW BIDDERS—BUILDINGS

F. D. Rich Co., 101 Park Ave., New York 17, N. Y. Low Bidder, $754,403, Dunbar Heights HOUSING, PEEKSKILL, N. Y. Peekskill Housing Auth., Municipal Bldg., Peekskill, N. Y. Bids Feb. 1. CD 1/9.

▲ **Cramer-Volimerhausen Co., Inc.**, 2601 Connecticut Ave. N. W., Wash., D. C. Low Bidder. $1,849,700, Douglass Junior High School between Stanton Rd. and Douglas Place S. E.; $1,199,000, Browne Junior High School addns., alterations, near 24 St. and Benning Rd. N. E. WASH., D. C. Dist. Comrs., District Bldg., Wash., D. C. CD 7/12/44.

CONTRACTS—HEAVY CONSTRUCTION

James Julian, 405 S. du Pont Rd., Elsmere, Del. Contract Awarded. $927,479. Intercepting Sewers A, B, and E, Contr. 1, WILMINGTON, DEL. City, Street & Sewer Dpt., City Hall, Wilmington, Del. Bids Jan. 30. CD 2/8, under LB.

CONTRACTS—BUILDINGS

† **Benjamin Lessner Co., Inc.**, Navy Yard, Phila., Pa., Contract Awarded $945,000 designing, constr., installing controls and air valves at Navy Aeronautical Laboratory in West TRENTON, N. J. Bureau Yards & Docks Annex, Navy Dpt., Arlington, Va. Awarded Feb. 7. CD 11/19/47.

G. F. Howard Constr. Co., Inc., Main St. W., Canfield, O. Contract Awarded. $896,871. general constr. JUNIOR-SENIOR HIGH SCHOOL for Mercer Joint School Dist., MERCER, PA. Public School Building Auth., 1400 N. Cameron St., Harrisburg, Pa. Bids Jan. 18, awarded Feb. 8. CD 1/22, under LB.

▲† **Turner Constr. Co.**, 1500 Walnut St., Phila., Pa. Contract Awarded. $1,500,000. PENN A. C. BUILDING alterations, Signal Corps use, PHILA., PA. Dpt. Army, 121 N. Broad St., Phila., Pa. The Ballinger Co., 121 N. Broad St., Phila., Pa., archt. CD 1/8.

Hartel Homes, Inc., 100 W. Rockland St., Phila., Pa. Separate Contracts. Approx. $800,000. RESIDENTIAL DEVELOPMENT, 6600 block Cottage and Gillespie Sts., PHILA., PA.

▲ **Kerper Homes, Inc.**, 100 W. Rockland St., Phila., Pa. Separate Contracts. $1,200,000. RESIDENTIAL DEVELOPMENT, 7200 block, Large and Lynford Sts., PHILA., PA.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES

March 9 Alabama
March 21 Florida
March 27 Louisiana

STREETS AND ROADS

March 7 Louisiana
March 9 Alabama

Ala., Russellville—B.A. 3/2—City, sewage treatment plant. Bids 2/9 rejected. O'Toole Eng. Co., Watts Bldg., Birmingham, engr. CD 1-31.

BIDS ASKED—BUILDINGS

▲ **N. C., Camp Lejeune**—HOUSING—B.A. 2/28—Dist. Pub. Wks. Office, Sixth Naval Dist., Naval Base, Charleston, S. C., construct, finance, manage 1,054 military housing unit project at U. S. Marine Barracks. $6,586,317.

▲ **Va., Richmond**—MUSEUM OF FINE ARTS—B.A. 2/28—Commonwealth of Virginia, The Virginia Museum Fine Arts, at office Merrill C. Lee, archt., 601 E. Franklin St., Virginia Museum of Fine Arts addn., alterations, Boulevard and Grove Ave. $1,500,000. Plans depusit $50. CD 11/6/50.

▲ **Ala., Decatur**—HOUSING—B.A. About 3/1—Decatur Housing Auth., Decatur, 146 housing units for East Section of city, Approx. $1,000,000. CD 1/12.

LOW BIDDERS—HEAVY CONSTRUCTION

† **Wright Contg. Co.**, 504 25 Ave., Columubus, Ga. Low Bidder. $1,241,034. Runway, taxiways, aprons, etc., at Tyndall Air Force Base, PANAMA CITY, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Jan. 30. CD 1/10.

T. L. James & Co., Inc., Ruston, La. Low Bidder. Method I, $856,837; Sam Finley, Inc., 292 North Ave., Atlanta, Ga., Method 2, $772,824, grading, conc. slab span bridges, small drainage structures, wid'n. c. conc. bit. surf. 11.296 mi., Lake Charles-Iowa Jct. Hy., State Rte. 2, S.P. 3-04-24 and 3-05-10, F. A. Proj. FI 35 (21), Calcasieu Parish, LOUISIANA. State Hy. Dpt., Baton Rouge, La. Bids Feb. 7. CD 1/12.

LOW BIDDERS—BUILDINGS

Irons & Reynolds, Inc., 1724 H. St. N. W., Wash., D. C. Low Bidder. $687,500. PHYSICAL EDUC. and

how white is white

"...Mary had a little lamb, its fleece was white as snow..."
Sarah Hale

Trinity White!

PORTLAND CEMENT

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Firm_____

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KINNEAR ROLLING DOORS

CLASSROOM bldg. at Mary Washington College, FREDERICKSBURG, VA. State of Virginia, Richmond, Va. Bids Feb. 9. CD 1/17.

▲ **R. P. Farnsworth & Co., Inc.,** 1515 S. Salcedo St., New Orleans, La. Low Bidder. **$1,427,000.** Acute HOSPITAL at Southeast Louisiana State Hospital, MANDEVILLE, LA. State Div. Admin., Baton Rouge, La. Bids Feb. 7. CD 1/10.

Henderson Co., Bd. Educ., Henderson, Ky., rejected bids Feb. 5. High school, HENDERSON, KY. **$650,000.** CD 1/18.

CONTRACTS—HEAVY CONSTRUCTION

▲ **E. A. Hudson's Son,** Bolton, Ga. Contract Awarded. **$218,195,** grading, paving 1 bridge repairs one new bridge 3.624 mi. Canton-Roswell Rd., State Rt. 140 beginning at end of present pavement approx. 8 mi. south of Canton and exten. toward Roswell S-0860, Cherokee and Fulton Counties; **$519,092,** grading, paving 2.177 mi. relocation Atlanta-Jonesboro Rd. to connect to south leg of North-South Expressway also 1.081 mi. of grading, paving 1 bridge on connection of Atlanta-Fayetteville Rd., State Rt. 85, beginning at Fulton Co. line and exten. south toward Jonesboro and Fayetteville F-074-2 (1) and FI-086-1 (1), Clayton Co.*****W. T. Anderson, Inc.,** Thomson, Ga., **$365,374,** grading, paving 1 bridge 8.98 mi. Statenville-Fargo Rd. beginning at end of present pavement approx. 9.6 mi. west of Fargo and exten. toward Statenville, F-088-1 (3), Echols Co.*****Wainer Constr. Co., Inc.,** Valdosta, Ga., **$318,308,** grading, paving 2.57 mi. McDonough-Jackson Rd. beginning approx. 9.2 mi. S. of McDonough and exten. partly on relocation to north city limits of McDonough and ending at city square, F-037-2 (1), Henry Co.*** **M. R. Woodall Co., Inc.,** 1590 Lakewood St. S.E., Atlanta, Ga., **$219,888,** widn., resurf. 0.843 mi. present pavement on State Rt. 2 in Hiawassee on Blairsville-Clayton Rd. beginning near jct. with State Rt. 75 in Hiawassee and exten. southeast 0.607 mi. wid'n. resurf. present pavement on State Rt. 2 in Young Harris and exten. toward Blairsville, F 058-1 (2) and F-058-1 (3), Towns Co.*****Ledbetter-Johnson Co.,** Rome, Ga., **$1,279,421,** grading, paving with double bridges 6.346 mi. at L & N Railroad, Pettits Creek over State Rt. 61 and at Rome interchange on Cartersville-Adairsville Rd. beginning north of Cartersville near intersection at State Rt. 61 and 20 and exten. north on relocation to point approx. 8 mi. south of Adairsville, FI-426 (9), Bartow Co.*****Acme Constr. Corp.,** Conchran, Ga., **$73,875,** grading, paving 5.238 mi. Clinton-Waysside Rd. beginning at State Rt. 11 in Clinton and ending at State Rd. 11 in Wayside, S-0779 (1), Jones Co.*****Wright Contg. Co.,** 504 25 Ave., Columbus, Ga., **$237,532,** grading, paving 0.449 mi. North Ave. connection beginning at North Ave. near Emmett St. and intersection of West By-Pass and ending on Bankhead Ave. at Echo St. U-001-5 (2), Fulton Co., GEORGIA State Hy. Dpt., Atlanta, Ga. Grand total $3,231,685. Bids Feb. 2, awarded Feb. 6. CD 1/26.

Superior Home Builders, 964 E. 25 St., Hialeah, Fla. Owner Builds. **$750,000.** 96 HOMES, Falcon, Plover, Swan and Wren Aves., MIAMI SPRINGS, FLA.

▲† **Wright Contg. Co.,** 504 25 Ave., Columbus, Ga. Contract Awarded. **$1,241,034,** Tyndall Field Air Force Base imprvs., PANAMA CITY, FLA. U. S. Eng., P.O. Box 1169, Mobile, 7, Ala. Bids Jan. 30. CD 2/15 under LB.

▲ † **Fourteenth Air Force,** Memphis Municipal Airport, Memphis, Tenn., Purchase and Hire. **$1,000,000.** Repairing 50 bldgs., erecting new bldg. for 4,000 men, MEMPHIS, TENN.

CONTRACTS—BUILDINGS

▲ **Austin Co.,** 16112 Euclid Ave., Cleveland, O. Contract Awarded. **$1,500,000,** auto parts WAREHOUSE and OFFICE, EAST POINT, GA. Fort Motor Co., East Point, Ga.

▲ **Rust Eng. Co.,** Exchange Bldg., Birmingham, Ala. Contract Awarded. **$1,000,000.** PLANT addn., BIRMINGHAM, ALA. Connor Steel Co., c/o contractor.

▲ **Clark Constr. Co.,** Owensboro, Ky. Contract Awarded. $1,741,203, 200 HOUSING units, CLARKSVILLE, TENN. Clarksville Housing Auth., Clarksville, Tenn. CD 2/1, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

February 27	March 6
Ohio	Wisconsin

STREETS AND ROADS

February 27	March 6
Ohio	Wisconsin
Wisconsin	

BIDS ASKED—BUILDINGS

▲ **O., Dayton**—HOSPITAL—B.A. 2/27—St. Elizabeth Hospital, 49 Hopeland St., 4 story hospital addn. $2,000,000. Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago 3, Ill., archts. Schenck & Williams, 3rd Natl. Bank Bldg., assoc. archts. CD 12/22.

Mich., Grand Blanc—SCHOOL—B.A. 2/28—Bd. Educ., H. S. Lund, secy., 2 story, bsmnt., brick, steel high school adn. $500,000, Warren S. Holmes Co., 2200 Olds Tower, Lansing, archts. CD 2/1.

Ill., Riverside—SCHOOL—B.A. 3/1—School Dist. 96, 61 Woodside Ave., school, $500,000. Perkins & Will 309 W. Jackson St., Chicago, Zone 6, archts. Project being rebid without formal rejection changes made. CD 7/25.

Ind., Marion—SUB-STATION—Bids Asked—I & M Electric Co., Marion, sub-station at Van Buren and 11 mi. line from Liberty Center to Montpelier, $500,000.

SOON LETS CONTRACT—BUILDINGS

Ill., Kankakee—CHURCH—St. Martin's Parish, Kankakee, soon lets contract 1 story, bsmnt., brick church, school and rectory, $500,000. Edo. J. Belli, 8 St. Dearborn St., Chicago 3, Ill., archts.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Herlihy-Midcontinent Co.,** 79 W. Monroe St., Chicago 3, Ill., Low Bidder, **$1,076,493,** two level highway Wacker Dr. between Washington and Madison Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 4/25/45.

CONTRACTS—HEAVY CONSTRUCTION

W. L. Magaw, Hawkins Rd., Richmond, Ind. Contract Awarded. **$622,997.** c. conc. wid'n., bit. resurf. type B 18.43 mi. Vincennes Hy., Knox and Sullivan Counties, INDIANA. State Hy. Comn., Indianapolis, Ind. CD 1/24.

CONTRACTS—BUILDINGS

▲ **H. G. Cristman,** 850 Fellows St., South Bend, Ind. Contract Awarded, **$2,500,000.** 1 story, 230x900 ft. FACTORY, LAPORTE, IND. Allis-Chalmers Mfg. Co., 1126 E. 70 St., Milwaukee, Wis. Chas. M. Cole & Son, 200 W. LaSalle St., South Bend, Ind., archts. Awarded Feb. 2. CD 10/20.

Dura-Bilt Constr. Co., 5150 Dempster St., Skokie, Ill. Contract Awarded. **$550,000.** Fifty 1½ and 2 story HOMES, SKOKIE, ILL. Dura-bilt Constr. Co., Laramie Ave. at Niles St., Skokie, Ill. Awarded Jan. 22.

Biltmore Building Co., 17615 James Couzens St., Detroit, Mich. Owner Builds. **$700,000.** 80 single brick HOMES, Bramell ano Beaverland Sts., DETROIT, MICH.

▲ **Harry Slakins Builders, Inc.,** 11534 Dexter St., Detroit, Mich. Owner Builds. **$3,000,000.** 200 brick, frame HOUSING units, Telegraph and 7 Mile Rds., DETROIT, MICH.

▲ **A. J. Gnich Building Co.,** Klein Ave., Frazer, Mich. Owner Builds. **$80C,000.** 100 frame HOUSING units, Klein Ave. and Utica Rd., FRASER, MICH.

▲ **Garling Constr. Co.,** 6922 N. Telegraph Rd., Detroit, Mich. Owner Builds. **$4,000,000.** 2 story, brick, 534 family HOUSING units, MELVINDALE (BR. DEARBORN), MICH.

▲ **Garling Constr. Co.,** 6922 N. Telegraph Rd., Detroit, Mich. Owner Builds. **$1,000,000.** 100 brick HOMES, WAYNE, MICH.

▲ **The Austin Co.,** 16112 Euclid Ave., Cleveland, O. Contract Awarded. Approx. **$2,500,000.** 125,000 sq. ft. FACTORY mfg. rubber products, southwest of here, near Green Camp, AKRON, O. B. F. Goodrich Co., 500 S. Main St., Akron, O. B. F. Goodrich Co., 500 S. Main St., Akron, O. CD 12/26.

▲ **George W. Lathrop & Sons, Inc.,** 1510 Montcalm St., Toledo, O. Contract Awarded. **$2,959,482,** general constr. 201-bed HOSPITAL, Wheeling St. and Navarre Ave., TOLEDO, O.*****Robert Carter Co.,** 125 S. Erie St., Toledo, O., **$494,918,** heating and ventilating, **$410,109,** plumbing, Sisters of Mercy, Mercy Hospital, 2221 Madison St., Toledo, O. Bids Jan. 4. CD 1/9, under LB.

▲ † **Fegles Constr. Co.,** 711 Wesley Temple bldg., Minneapolis, Minn. Contract Awarded. **$2,000,000.** rehabilitate powder PLANT at Badger Ordnance Plant, BARABOO, WIS. U. S. Eng., P.O. Box 744, 428 Federal Bldg., Milwaukee 1, Wis.

▲ **Hunzinger Constr. Co.,** 4541 N. 124 St., Milwaukee 13, Wis. Contract Awarded. **$2,750,000.** 1 story, part bsmnt., 360x440 ft., sheet metal PLANT, MILWAUKEE, WIS. Cutler-Hammer, Inc., 315 N. 12 St., Milwaukee, Wis. Bids Jan. 26. CD 1/25.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

March 2
Missouri

STREETS AND ROADS

March 2
Missouri

▲ **Texas**—DAM and POWER PLANT—Bids After March 1—Brazos River Conservation & Reclamation Dist., Mineral Wells, Turkey Creek Dam and Power plant, Inspiration Point Dam and power plant and DeCordova Bend Dam and power plant. $30,000,000. Ambursen Eng. Corp., 295 Madison Ave., New York 17, N. Y. engrs. CD 11/2/49.

BIDS ASKED—BUILDINGS

Minn., St. Cloud—LIBRARY—B.A. 2/28—State, Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, 3 story library at State Teachers College, $700,000. Plans deposit $50. L. C. Pinault, St. Cloud, archt. CD 6/30/49.

▲ **Tex., Port Arthur**—PLANT—Bids Asked—Gulf Oil Corp., Port Arthur, addnl. plant unit for mfg. isooctyl alcohol. $3,000,000. CD 2/2.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **J. W. Moorman & Sons,** Wylie, Tex. Low Bidder, **$1,452,877,** earthen dam*****McKenzie Constr. Co.** and **Ben Sira & Co.,** 3103 Kings Row, Dallas, Tex., **$993,100,** Sect. 2, water supply line from Big Spring to Martin Co. well field, **$1,618,400,** Sect. 3, water supply line from Martin Co. well field to Odessa; **$1,300,000.** Sect. 1, water supply line from Colo-

rado River Reservoir to Big Spring, BIG SPRING, TEX. Colorado River Municipal Water Dist., E. V. Spence, mgr., Big Spring, Tex. Bids Feb. 7. CD 1/15 and 1/9.

▲ Farnsworth & Chambers, Inc., Box 3, Houston, Tex. Low Bidder, $1,570,328, est. $850,000. bridge across portion San Jacinto Reservoir on Atascocite Rd.; cancelled bids to have been opened Jan. 22. 2nd bridge across portion of San Jacinto Reservoir on Atascocite Rd., 1,327 ft. long, steel girder type. HOUSTON, TEX. Harris Co., Court House, Houston, Tex. Howe & Wise, 4119 San Jacinto St., Houston, Tex., engrs.

▲ Farnsworth & Chambers, Inc., Box 3, Houston, Tex. Low Bidder, $1,529,928, est. $650,000. construct Atascocite Rd. across San Jacinto Reservoir, HOUSTON, TEX. Harris Co., Court House, Houston, Tex. Howe & Wise, 4119 San Jacinto St., Houston, Tex., engrs. Bids Jan. 22.

▲ Brown & Root, Inc., Box 3, Houston, Tex. Low Bidder, $1,995,508. city-wide street asph. paving and imprvs. (also bridges, grading, storm sewers, leveed), McALLEN, TEX. City, McAllen, Tex. Bids Feb. 5. CD 1/24.

LOW BIDDERS—BUILDINGS

▲ Galveston Independent School Dist., 5200 N½ Alamo St., Galveston, Tex., rejected bids Feb. 9, 125,000 sq. ft. HIGH SCHOOL for Negroes, L. B. $1,721,236; 200,000 sq. ft. HIGH SCHOOL for Whites, L. B. $2,492,832, GALVESTON, TEX. CD 2/2.

▲ Marye-Northwestern Co., 2000 W. 8 Ave., Denver, Colo. Low Bidder, $1,637,777, public HOUSING, Proj. Colo. 1-8, incl. 39 one and two story bldgs. for housing and 1 maintenance bldg. incl. 200 units, DENVER, COLO. Denver Housing Auth., 144 Navajo St., Denver, Colo. Bids Jan. 9. CD 1/18, under LB.

CONTRACTS—HEAVY CONSTRUCTION

▲ Northern Natural Gas Co., Aquila Court Bldg., Omaha, Neb. Owner Builds. Approx. $1,000,000. 20 mi. 16 in. natural gas supply line from south to 84 and Center Sts., Douglas and Sarpy Counties, NEBRASKA. M. C. Madsen, c/o owner, ch. engr.

† Atlantic, Gulf & Pacific Dredging Co., Citizens State Bank Bldg., Houston, Tex. Contract Awarded. $644,-721, dredging, Sabine-Neches Canal, Port Arthur area, Jefferson Co., Inv. No. CIVENG 41-243-51-45, TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Jan. 29. CD 2/14, under LB.

▲ McKenzie Constr. Co. and Ben Sira & Co., 3103 Kings Row, Dallas, Tex., Contract Awarded. $993,-100, Sect. 2, water supply line from Big Spring to Martin co. well field; $1,300,000, Sect. 1, c.i. water supply line from Colorado River Reservoir to Big Spring; $1,618,400, Sect. 3, water supply line from Martin co. well field to Odessa, BIG SPRING, TEX. Grand Total $3,911,500. Colorado River Municipal Water Dist., Big Spring, Tex. Bids Feb. 7, awarded Feb. 12. CD 2/13, under LB.

† H. B. Zachry Co., Box 2570, San Antonio, Tex. Contract Awarded. Approx. $665,000. imprv. Gray Air Force Base Defense facilities, KILLEEN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. CD 2/9.

▲† C. L. Browning, Jr., 812 Travis Bldg., San Antonio, Tex., Contract Awarded. $690,000. 1,000 seating capacity mess hall, $1,890,000, 25 two story brick barracks, concrete slab fdns., LACKLAND AIR BASE (BR. SAN ANTONIO), TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. CD 2/8 and 2/7.

† J. & J. Constr. Co., Petroleum Bldg., Oklahoma City, Okla. Contract Awarded. $851,623. 92 mi. Glendive-Williston 115 kv transmission lines, Fort Peck Proj. Spec. DC 3268, MONTANA and NORTH DAKOTA, Bureau Reclamation, Dpt. Interior, Fort Peck, Mont. Awarded Feb. 5. CD 1/29, under L.B.

CONTRACTS—BUILDINGS

▲ C. F. Haglin & Sons Co., 123 Bryant Ave. N., Minneapolis, Minn. Contract Awarded. Approx. $1,000,-000. General constr. 1 story, 100,000 sq. ft. electronic automatic pilots PLANT adjoining factory, 1453 Stinson Blvd., MINNEAPOLIS, MINN. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave. S., Minneapolis, Minn. Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, Minn., archts.

J. E. Dunn Constr. Co., 929 Holmes St., Kansas City 6, Mo. Contract Awarded. $500,000. 162x310 ft., 50,000 sq. ft. WAREHOUSE, 12 and Burlington Sts., NORTH KANSAS CITY, MO. Pittsburgh Plate Glass Co., Fifth and Wyandotte Sts., Kansas City 6, Mo. Awarded Feb. 10. CD 8/4/50.

▲ Hodges Bros. Co., Olathe, Kan. Owner Builds. $10,-000,000. HOME development, near KANSAS CITY, KAN. Hare & Hare, 114 W. 10 St., Kansas City, Mo., landscape archts.

▲ Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Md. Contract Awarded. $1,000,000. 1 story, brick, concrete, steel, 180,000 sq. ft. PLANT and WAREHOUSE, LADUE (ST. LOUIS 5, P. O.), MO. Grove Laboratories, Inc., James W. Grove, pres., 2630 Pine St., St. Louis 3, Mo. Jamieson & Spearl, 1696 Arcade Bldg., 812 Olive St., St. Louis 1, Mo., archts.

▲ Ditmars-Dickmann Co., Manhattan Bldg., Muskogee, Okla., Contract Awarded. Approx. $4,000,000. PAPER PLANT, PRYOR, OKLA. National Gypsum Co., 111 W. Washington St., Chicago, Ill. Awarded Feb. 2. CD 11/27.

▲ W. R. Grimshaw Constr. Co., Kome Bldg., 8 and Main Sts., Tulsa, Okla. Contract Awarded. $1,163,-567, est. $1,100,000. Alexander Graham Bell HIGH SCHOOL, TULSA, OKLA. Bd. Educ., 410 S. Cincinnati St., Tulsa, Okla. CD 2/6, under LB.

(Continued on page 81)

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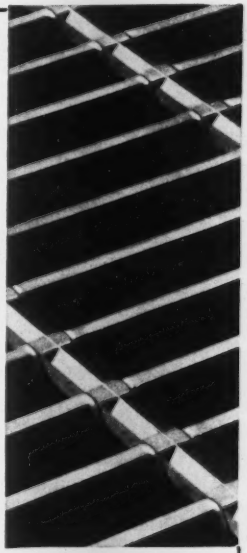

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Philip D. Barnard, 2036 Addison, Houston 5, Tex.
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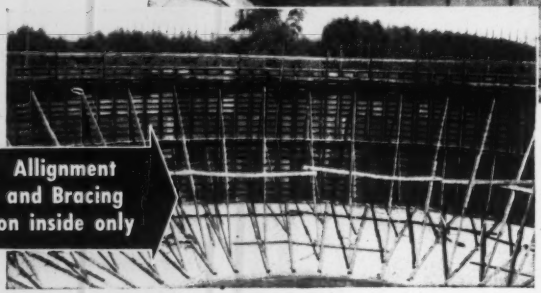

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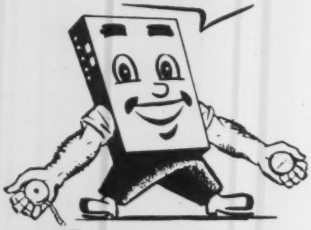

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- SWAMPSCOTT, MASS. 51 Barnstable St.
- HATO REY, PUERTO RICO Ave. Munoz Rivera 84—Stop 27½

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(Continued from page 79)

▲ **American Bridge Co.**, 208 S. LaSalle St., Chicago, Ill., Contract Awarded. **$3,155,298**, fabrication for main steel PLANT bldgs.*****Morgan Eng. Co.**, Alliance, O., **$2,285,644**, furnishing, installing 8 heavy duty CRANES, DAINGERFIELD, TEX. Long Star Steel Co., 4152 Mockingbird Lane, Dallas, Tex. CD 1/25.

▲ **A. J. Rife Constr. Co.**, 2608 Inwood Rd., Dallas, Tex. Contract Awarded. **$2,845,312**, est. $2,250,000. 50 brick 2 story bldgs. for total 300 APARTMENT units, concrete slab fdn., for Negro occupancy, DALLAS, TEX. Dallas Housing Auth., City Hall, Dallas, Tex. Bids Feb. 6. CD 1/5.

▲ **Likins, Foster & Assoc.**, 121 S. Yale Ave., Albuquerque, N. M. Owner Builds. Approx. **$4,200,000**. 600 DWELLINGS, EL PASO, TEX. CD 2/13.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

*STATE HIGHWAY LETTINGS

BRIDGES

March 8 California
March 14 California
March 15 California

STREETS AND ROADS

March 7 California
March 14 California
March 8 California
March 15 California

Calif., Los Angeles—B.A. 3/6—Bd. Supervs., Los Angeles Co., 501 Hall of Records, 5.54 mi. sanitary sewers in Sinaloa Ave., Altaden, $151,350. C. E. Arnold, co. surveyor and engr. CD 12/17/48.

† **Oregon**—B.A. 3/8—U. S. Eng., Pittock Block, Portland,

Marion Co.—construct 1.15 mi. Kinney Creek timber access road and 1.79 mi. French Creek timber access road, CIVENG 35-026-51-190.

BIDS ASKED—BUILDINGS

Idaho, Jerome—HOSPITAL—B.A. 3/1—Jerome Hospital Assn., Jerome hospital. $619,200. Wayland & Fennell, Idaho Bldg., Boise, archts. CD 5/24/49.

† **Wash., North Richland**—BUILDINGS—B.A. 3/1—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 274,600 sq. ft., frame, metal or masonry buildings, Inv. No. 45-108-51-97, Sched. A.

† **Wash., Fort Lewis**—TELEPHONE, etc.—B.A. 3/2—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, telephone and signal bldg. Eng. No. 51-100. $272,000. CD 8/29.

Wash., Poulsbo—SCHOOL—B.A. 3/2—North Kitsap School Dist. 400, Poulsbo, school at George's Corner and school at Pearson. $200,000. Plans deposit $5. W. A. Johnson & Assoc., First National Bank Bldg., Everett, archts. Extended date. CD 2/12.

Calif., El Centro—HOSPITAL—B.A. 3/7—Imperial Valley Memorial Hospital, 751 Main St., 42-bed rein.-con. hospital, $500,000. Plans deposit $50. Frank Hyde, 107 S. 5 St., archt. CD 5/11.

LOW BIDDERS—BUILDINGS

▲ **Macdonald Bldg. Co.**, 1517 S. Tacoma Way, Tacoma, Wash. Low Bidder, **$1,072,309**, est. $1,000,000, general constr. 2 story, 120x300 ft. rein.-con. LIBRARY addn., TACOMA, WASH. Tacoma Pub. Library, 1120 S. Tacoma Ave., Tacoma, Wash. Bids Feb. 9. CD 2/2.

▲ **Robert E. McKee Co.**, 4700 San Fernando Rd., Los Angeles, Calif. Low Bidder, **$6,659,000**. 8 story city **HEALTH BLDG. and RECEIVING** HOSPITAL, LOS ANGELES, CALIF. City Bd. P. Wks., City Hall, Los Angeles, Calif. Bids Feb. 14. CD 1/8.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Lookout Point Contractors**, American Bank Bldg., Portland, Ore. Contract Awarded. **$1,992,362**, 14 mi. track relocation on Southern Pacific main line, Lane Co., CIVENG 35-026-51-126, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Jan. 25, awarded Feb. 6. CD 1/31, under LB.

▲ **Claude Fisher Co., Ltd.**, 2455 E. 55 St., Los Angeles, Calif., Contract Awarded. **$1,025,284**, grading, surfacing 5.1 mi. between north city limits of Los Angeles near Tunnel Sta. Bridge and Peco Canyon Rd., Los Angeles Co., CALIFORNIA. State Div. Hys., P. Wks. Bldg., Sacramento, Calif. Bids Jan. 25, awarded Feb. 6. CD 12/29.

CONTRACTS—BUILDINGS

▲ **Ross B. Hammond**, 1241 N. William St., Portland, Ore. Contract Awarded. **$2,842,928**, 100x300 ft. HIGH SCHOOL, EUGENE, ORE. Eugene School Bd., Eugene. Bids Dec. 28, awarded Jan. 5. CD 1/4, under LB.

▲ **Lakewood Park Corp.**, 9434 Long Beach Blvd., South Gate, Calif. Own Forces. **$35,000,000**. HOUSING development addn. planned for 1951. NORTH LONG BEACH, CALIF. CD 3/30/50, under CA.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—OFFICERS' QUARTERS—B.A. 3/7—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, male bachelor officers' quarters, female bachelor officers' quarters, at Ladd Air Force Base. Inv. No. S95-507-51-62. Plans deposit $50. CD 11/27.

† **Alaska**—OFFICERS QUARTERS—B.A. 3/7—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, 18

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male bachelor officers' quarters and 5 female bachelor officers' quarters. Inv. No. S95-507-51-42. Plans depost $50.

BIDS ASKED—BUILDINGS

† Alaska, Eklutna—RESIDENCES, etc.—B.A. 3/1—Bureau Reclamation, Dpt. Interior, Palmer, Alaska, six 3-bedroom and six 2-bedroom residences, two 10-car garages, streets and utilities at Eklutna Government Camp, Eklutna Proj., Spec. No. DC-3307.

CONTRACTS—HEAVY CONSTRUCTION

▲† C. F. Lytle Co. & Green Constr. Co., 312 Masonic Temple Bldg., Des Moines, Ia. Contract Awarded. $1,236,207, clearing, brubbing, grading, drainage 17.051 mi. Seward-Anchorage Hy., Sect. B2, between Miles Posts 33 and 50, ALASKA. Bureau Pub. Roads, Dpt. Commerce, 419 Federal and Territorial Bldg., Juneau, Alaska. Bids Feb. 8. CD 2/14, under LB.

U. S. POSSESSION

BIDS ASKED—HEAVY CONSTRUCTION

Puerto Rico—AIRPORT—B.A. 3/8—Puerto Rico Transportation Auth., San Juan, pavement of runway, taxiways and apron of the Puerto Rico International Airport, Proj. No. 9-53-001-03. Plans deposit $100; adv. ENR 2/22. CD 9/5.

CANADA

BIDS ASKED—BUILDINGS

▲ N. S., Dartmouth—BARRACKS—B.A. 3/7—P. J. Mangan, engr., c/o Defence Constr. Co., 1032 Gottingen St., Halifax, fireproof permanent barracks for 760 personnel, H.M.C.S. Shearwater. Approx. $1,500,000. Plans deposit $50. CD 2/5.

CONTRACTS—BUILDINGS

▲ Yolles & Rotenberg Ltd., 372 Bay St., Toronto, Ont., Contract Awarded, Approx. $1,250,000, SYNAGOGUE, Bathurst St. and Avenal Rd., TORONTO, ONT. Goel Tzedec Congregation of Toronto, 404 University Ave., Toronto, Ont. H. B. Kohl, 9 Richmond St., E., Toronto, Ont. and Isadore Markus, 96 Bloor St., W., Toronto, Ont., archts.

▲ Dansereau Ltd., 1387 Bernard St. W. Montreal, Que. Contract Awarded. Approx. $4,000,000, 2 and 3 story, T-shaped, 310 ft. front, 230 ft. center, rein.-con. Normal SCHOOL, MONTREAL, QUE. Que. Provincial Govt., Hon. A. Cote, secy., Quebec City, Que. Gascon & Parant, 934 St. Catherines St. E., Montreal, Que., archts. and Lalonde & Valois, Canada Cement Bldg., Montreal, Que., engrs.

▲ A. Janin & Co. Ltd., 1406 Sherbrooke St. W. Montreal, Que. Contract Awarded. Approx. $1,000,000, 10 story, rein.-con., limestone HOTEL exten. shops, offices, storage rooms, etc., MONTREAL, QUE. Ritz-Carlton Hotel Co. of Montreal Ltd., 1228 Sherbrooke St. W., Montreal, Que. Bids Jan. 16. CD 1/15.

(Proposal Advertisements see pp. 82 to 84)

OFFICIAL PROPOSAL

Bids: April 16, 1951 (341)

Patrol Road and Expansion of Parking Area No. 1

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-140.001

Sealed proposals for the construction of a patrol road and expanding the area and facilities of Parking Area No. 1 at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., N. Y. 11, until 11:30 A. M. Friday, March 2, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.

New York, February 22, 1951

Bids: February 28, 1951 (343)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACT NOS. 55, 55A and 55B

The work to be performed under these Contracts consists of the application of all field coats of paint to the superstructure steelwork for the bridges over the Passaic and Hackensack Rivers and other incidental work in connection with the field painting of the Passaic and Hackensack River Bridges which form parts of the New Jersey Turnpike, in the City of Newark, Essex County, and in the Towns of Kearny and Secaucus, Hudson County.

Alternate bids will be received for any one of the above Contracts or any combination thereof as follows:

Alternate A
Field Painting Metalwork—2 coats, Lump Sum

Alternate B
Field Painting Metalwork—3 Coats, Lump Sum

The approximate tonnages of superstructure steelwork in the Passaic and Hackensack River Bridges to receive field coats of paint are 21,500 tons and 15,650 tons respectively.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of February 28, 1951 and thereafter in the Veterans Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey until 11:00 A.M. on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal or proposals a revised financial statement and a statement of plan and equipment.

Contract documents for each of the above Contracts may be seen and may be inspected by prospective bidders during office hours, after February 14, 1951, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, at the office of the Engineers, Ammann & Whitney, 185 Raymond Boulevard, Newark, New Jersey, or 76 Ninth Avenue, New York 11, N. Y. and at the office of the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York, N. Y.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

Proposals must be made for both Alternates A and B under any one Contract upon the standard proposal forms in the manner designated in the Standard Specifications for construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) percent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00, and must be delivered at the above place on or before the hour named. Where proposals are submitted for more than one contract, one check and one bond on the largest amount of work will be sufficient. Copies of the proposal form to be used for submitting proposals, of the form for proposal bond, of the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and of special addressed envelope are furnished in detached form with the Contract Documents. Bidders submitting proposals on combination of Contracts Nos. 55A and 55B are required to submit only one statement of plan and equipment.

The Contracts will be awarded or proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

February 14, 1951

Bids: March 15, 1951 (336)

Superstructure & Substructure

Sealed proposals will be received by The City of Dunbar, a municipal corporation, by The Bridge Commission of the City of Dunbar, Kanawha County, West Virginia, at the offices of said Commission on the first floor of the City Hall, Dunbar, West Virginia, until 8:00 o'clock P. M. (EST) on the 15th day of March, 1951, and said bids will be publicly opened and read aloud immediately thereafter in the Council Chamber in the City Hall.

For the construction of the following projects:

A steel superstructure consisting of 2-225 ft., 1-450 truss span, and 1-198 ft. 2 span continuous girder. All complete with handrail, flooring and lighting.

Substructure concrete abutments, piers and approaches.

All proposals shall be a bidder's bond in amount of 5% of total bid.

Plans, specifications and proposal forms may be obtained from C. P. Fortney, Consulting Engineer, 206 Union Building, Charleston, West Virginia.

The Bridge Commission reserves the right to reject any or all proposals or to defer the awarding of the contract.

2/12/51 H. G. Robinson, Chairman

(Continued on page 83)

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

U. S. Government
(Continued from page 82)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3324) will be received by the Bureau of Reclamation, Denver, Colorado, until March 15, 1951, and then publicly opened for furnishing 2 vertical-shaft centrifugal pumps of 200 cfs capacity at 175-foot head for Colorado-Big Thompson Project, Colorado. Delivery is desired within 365 days. For particulars address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado. (338)

OFFICIAL PROPOSALS

Bids: March 19, 1951 (303)

Sewage Treatment Plant

Sealed bids for the construction of the TOWN OF EAST PROVIDENCE SEWAGE TREATMENT PLANT, EAST PROVIDENCE, RHODE ISLAND, will be received by the Chairman of the Board of Sewer Commissioners, at the Town Hall, East Providence, Rhode Island, until 7:00 o'clock P.M. (EST) on March 19, 1951, and then publicly opened and read at its meeting.

The project consists of complete construction for a primary and secondary sewage treatment plant, including chlorine control building and pump sump, stilling basin and grit chambers, comminutors, two primary tanks (primary sludge sump, primary scum sump and valve pit), chlorine mixing chambers, dosing siphon building (six siphons), six trickling filters, chlorine mixing chamber and drop manhole, two secondary tanks (secondary sludge sump), two digesters, filter building (Administration), manholes, all equipment, piping, heating and ventilating, roadways and landscaping.

The Contract Documents, including drawings and specifications, may be examined on and after February 20, 1951, at the office of the engineers, Charles A. Maguire & Associates, 1015 Turks Head Building, Providence, Rhode Island, and copies may be obtained upon deposit of $75.00 for each set taken. Any bidder, upon returning one such set promptly and in good condition, will be refunded his payment. All other deposits of actual bidders and all deposits of non-bidders, upon return of the documents in good condition within fifteen (15) days after the date of opening of bids, will be refunded with a deduction of twenty-five ($25.00) Dollars for each set taken, to cover the actual cost of production.

Bid security, in an amount of not less than five (5%) percent of the total bid in the Proposal, shall be submitted with the bid and shall be subject to the conditions set forth in the Instructions to Bidders. The Engineer's Estimate is one-and-half million ($1,500,000) dollars.

No bid may be withdrawn for a period of thirty (30) days subsequent to the opening of bids.

The Board of Sewer Commissioners of the Town of East Providence, Rhode Island, reserves the right to waive any informalities in, or to reject, any or all bids.

EAST PROVIDENCE BOARD OF SEWER COMMISSIONERS
[s] Milton H. Irons
Chairman

Bids: March 7, 1951 (342)

Connections to Port Authority Bus Terminal Ninth Avenue Stores Exclusive of Foundations

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
CONTRACT LT-120.006

Sealed proposals for the Ninth Avenue Stores, exclusive of foundations at the connections to the Port Authority Bus Terminal, New York City, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., N. Y. 11, until 2:00 P. M. Wednesday, March 7, 1951, and thereafter in the Auditorium of the Authority at the same address until 2:30 P. M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, February 22, 1951

OFFICIAL PROPOSALS

Bids: March 2, 1951 (340)

Offers for Design and Construction Guthega Hydro-Electric Project

SNOWY MOUNTAINS HYDRO-ELECTRIC AUTHORY—AUSTRALIA
Modification to Conditions

The closing date for offers has now been extended from 12 noon on Monday, 16th April, 1951 as previously advertised, to 12 noon on Monday 21st May, 1951.

It will now be required that the contract works be completed in a period of two years and twenty-six weeks from "Notification to Proceed."

Other conditions of tendering remain as previously advertised.

Offers in Australian currency, written in English and endorsed "Contract 5008, Offer for Design and Construction of the Guthega Project," will be received by the Secretary, Snowy Mountains Hydro-Electric Authority, at 85 O'Riordan Street, Alexandria, New South Wales, until 12 noon on Monday, 21st May, 1951. A preliminary deposit of £A.1,000, payable at Sydney, must be lodged with the offer.

Lowest or any offer not necessarily accepted.

H. F. Archer
Secretary

OFFICIAL PROPOSALS

Bids: March 7, 1951 (339)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 7th day of March, 1951, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the Construction of the following project in Erie County.

Contract No.	Name	Miles	Type	Estimated Deposit	Estimated Cost of Work
FA0T51-1	Ontario Thruway	1.93 Cont.	9"-2 Crse Cem. Conc. Pavt. 2 at 37' Wide = 1.57 mi. Misc. Work = 0.03 mi. Asp. Conc. Opt. = 0.33 mi. (2 Crse. Cem. Conc. Pavt. on Access = 0.70 mi.) Hy. Sep. 3 Sp. Alpha I-Beam 143' Total Hy. Sep. 4 Sp. Alpha I-Beam 196 Total R.R. Sep. 12 Sp. Alpha I-Beam 1026.84' Total R.R. Sep. 4 Sp. I-Beam 196 Total Alpha Royalty = $4,048.00	$200,000 Plans $50	$3,790,000
FAR(51-4	(William St. to Walden Ave.)	0.70 Access			
FAST51-1	Broadway-Depew, S.H. 914 William Street, Co. Rd. 207 Project No. UI-1071(7)				

Maps, plans, specifications, and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineer, C. R. Waters, State Office Bldg., Buffalo 2, N. Y. and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Proposal for contract must be submitted in a sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: March 13, 1951 (337)

Construction of Underwater Crossing

CITY OF WILMINGTON, DELAWARE

Sealed proposals for furnishing materials, labor and constructing Underwater Pipe Lines, Contract No. 4 of the City of Wilmington's Sewage Treatment Program, will be received from qualified bidders by the Board of Directors of the Street and Sewer Department, Room 251, City Hall, until 2:00 P.M., Eastern Standard Time March 13, 1951 at which time and place they will be publicly opened and read aloud.

The work embraces the construction of the Brandywine Creek underwater crossing—two—54 inch reinforced concrete pipe sewers, each approximately 280 feet long; the Christina River underwater crossing—two—24 inch cast iron pipe sewers, each approximately 410 feet long; the Delaware River outlet—84 inch reinforced concrete pipe sewer, approximately 230 feet long; dredging and other appurtenant and miscellaneous work.

Drawings and specifications may be obtained from the office of the Board of Directors of the Street and Sewer Department of the City of Wilmington, Room 260, City Hall, or from the office of Whitman, Requardt and Associates, 1304 St. Paul Street, Baltimore 2, Maryland, upon deposit of Fifteen Dollars ($15.00) for each set of drawings and specifications, which deposit will be refunded upon return of the plans and specifications in good condition.

The Board of Directors of the Street and Sewer Department reserves the right to reject any or all bids and to accept the bid, which in its opinion best serves the interests of the City.

By order of
Board of Directors of the Street and Sewer Department
Chester R. Jones—President

Attested
James J. Livingstone, Secretary

Bids: March 15, 1951, (335)

Intercepting Sewer

Sealed proposals will be received at the office of the Department of Service and Buildings of the City of Dayton, State of Ohio until 12:00 o'clock noon Eastern Standard Time, Thursday, March 15, 1951, for furnishing all materials and constructing Section "A" of an Intercepting Sewer in the bed of the Great Miami River and through McCook Field from the intersection of the Great Miami and Mad Rivers to Triangle Park, and thereafter will be publicly opened and read.

The project consists primarily of approximately 5,000 feet of 60 inch pipe, or as an alternate, 5,000 feet of "Y" horse shoe sewer 4'-9" x 4'-0" deep; 2400' of 42" pipe sewer; and miscellaneous smaller connecting sewers.

It is to be assumed that the total cost of the improvement will not exceed $560,674.70. Bids shall be accompanied by a certified check upon some solvent bank or a bond executed by a surety company authorized to do business in Ohio, or a bond of the United States or the City of Dayton for a sum equal to 5% of the amount of the bid submitted as a guarantee that if the bid is accepted a contract will be entered into and its performance properly secured. Plans, specifications and proposals forms may be obtained from the City Engineer, 500 Municipal Building, Dayton 2, Ohio, upon payment of $25.00 per set. Checks shall be made payable to the City of Dayton. Refund will be made for return of plans and specifications. The City reserves the right to reject any or all bids or to accept the proposal which appears most advantageous.

George F. Baker
Director of Service and Buildings
Municipal Building
Dayton 2, Ohio

(Continued on page 84)

U. S. Government
(Continued from page 83)

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS, Foot of Prytania Street, New Orleans, La.—Sealed bids will be received in this office until 11:00 a.m., CST, 21 March 1951, and then publicly opened for construction of spillway, outlet structures, dike and dam closure of Texarkana Dam, Bowie and Cass Counties, Texas, New Orleans District. The principal features involved are approximately 50,000 cubic yards of concrete; 74,000 barrels of cement; 4,290,000 pounds of reinforcing steel; 3,700 lineal feet of drainage relief wells; 70,100 cubic yards of riprap; 3,570,000 cubic yards of excavation; and 2,000,000 cubic yards of compacted embankment. Further information on application. (322)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3320) will be received by Bureau of Reclamation, Goleta, California, until March 15, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Lauro Dam, Cachuma Project, California. The work is situated approximately 2 miles northwest of Santa Barbara, California. Principal items are approximately: 580,000 cu. yds., excavation for dam and appurtenances; 470,000 cu. yds., embankment; 2,500 cu. yds., concrete; 26,000 lbs., installation, metalwork and machinery, 114,000 cu. yds., excavation for road; and other work. Time allowed for completion will be 400 days. For particulars, address Bureau of Reclamation, Goleta, California; or Building 1-A, Denver Federal Center, Denver, Colorado. (331)

February 7, 1951, United States Department of the Interior, Bureau of Reclamation. Notice is hereby given that sealed bids on Specifications No. 703C-175 will be received at the Office of the Bureau of Reclamation, Torrington, Wyoming, until 10 a.m., Mountain Standard Time, February 26, 1951, and then publicly opened for furnishing labor and materials and performing all work for the rehabilitation of existing laterals, Lateral 98.1, Station 45+27.6 to Station 106+77.1; Lateral 98.1B, Station 120+00 to Station 144+56.7; Lateral 98.1C, Station 84+87.4 to Station 464+89.96, Fort Laramie Canal, North Platte Project, Wyoming-Nebraska. The work is situated approximately 8 miles southwest of Morrill, Nebraska.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, 318 New Customhouse, Denver 2, Colorado; I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming; and Charles H. Rader, Construction Engineer, Torrington, Wyoming. The specifications will consist of 2 volumes, "Special Provisions" and "Standard Specifications for Construction of Canal Systems, March 1949." No charge will be made for copies of the Standard Specifications or for copies of the Special Provisions furnished for bidding purposes; for others the charge will be $0.30 per copy for the Standard Specifications and $0.50 per copy for the Special Provisions, not returnable. (330)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3315) will be received by Bureau of Reclamation, Ephrata, Washington, March 22, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and structures, East Low Canal, Station 2090+75 to Station 2280+00 and Lind Coulee wasteway, Station 0+00 to Station 30+00, Columbia Basin Project, Washington. The work is situated near Warden, Washington. Principal items are approximately: 2,800,000 cu. yds., excavation; 47,000 cu. yds., concrete; furnishing and placing 11,500,000 lbs., reinforcement bars; and other work. The work is divided into 2 schedules. Time allowed for completion will be 900 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado. (329)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3318) will be received by Bureau of Reclamation, Huron, South Dakota, until March 13, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Fort Randall-Winner 115-kilovolt transmission line, Missouri River Basin Project. The work is situated in the south central portion of South Dakota. The line will be 3-phase, single-circuit, wood-pole, H-frame type, approximately 72 miles long, and will have 2 overhead ground wires for the entire length. Completion is desired within 360 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 1-A, Denver Federal Center, Denver, Colorado. (334)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3321) will be received by the Bureau of Reclamation, Denver, Colorado, until March 8, 1951, and then publicly opened for furnishing three 42-foot by 30-foot radial gates and 3 counterweight frames for Missouri River Basin Project, Nebraska. Delivery is desired within 365 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado. (333)

February 5, 1951, United States Department of the Interior, Bureau of Reclamation. Notice is hereby given that sealed bids on Specifications No. 703C-171 will be received at P. O. Box 280, Reclamation Center, Casper, Wyoming, until 10 a.m., Mountain Standard Time, February 27, 1951, and then publicly opened, for furnishing labor and materials and performing all work for erecting prefabricated garage and machine shop at Reclamation Center near Casper, Wyoming, Kortes Unit, Wyoming, Missouri River Basin Project. The work is situated approximately 3½ miles west of Casper, Wyoming.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, 318 New Customhouse, Denver 2, Colorado; and I. J. Matthews, District Manager, P.O. Box 280, Casper, Wyoming. No charge for copies of the specifications nad drawings furnished for bidding purposes; for all others $0.50 per copy not returnable. (332)

BIDS FOR REPLATING STEEL BARGES—Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received until 11:00 a.m., C.S.T., 27 February 1951, and then publicly opened for replating twenty-three steel material barges. Information upon request. (315)

OFFICIAL PROPOSALS

Bids: March 1, 1951 (297)

Refuse and Sewage Sludge Incinerator, Sewage Treatment Plant, Pumping Station and Sewers

MUNICIPAL AUTHORITY OF THE TOWN OF BLOOMSBURG, COLUMBIA COUNTY, PENNSYLVANIA

Sealed proposals will be received at the Council Chamber, Town Hall, Bloomsburg, Pennsylvania, until 2:00 P.M., EST., March 1, 1951 for furnishing all necessary labor, materials and equipment, and performing all work for the construction of a SEWAGE TREATMENT PLANT, PUMPING STATION AND SEWERS and a REFUSE AND SEWAGE SLUDGE INCINERATOR AND APPURTENANCES, and will there be publicly opened and read at that time. Separate proposals will be received upon two parts of the project as follows:

Refuse and Sewage Sludge Incinerator—including Incinerator Building, Circular (Mechanically Stoked) Furnace or Mutual-Assistance (Manually Stoked) Furnace, Chimney and Foundation, Water Service Line, Electrical Work, Exterior Piping, Concrete Piping, Access Road and Landscaping, Specified Equipment and Appurtenances.

Sewage Treatment Plant, Pumping Station and Sewers—including Control Building, Diversion Manhole, Flash Mixer, Flocculator, two Clariflers, Chlorine Contact Tank, two Sludge Concentration Tanks, Concrete Piping, Fencing, Electrical Work, Exterior Piping, Access Road and Landscaping, specified equipment and appurtenances; 10,000 lin. ft. 8" to 12" vitrified sewers; 1,000 lin. ft. 6" vitrified sewer house connections, 600 lin. ft. 15" and 24" reinforced concrete pipe; 35 manholes and appurtenances.

Proposals shall be accompanied by certified checks or satisfactory bidder's bonds in accordance with provisions contained in the Specifications and in amount not less than five (5) per cent of the bid total.

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Penna., or at the office of the Authority Secretary Paul Jacobs, Town Hall, Bloomsburg, Pennsylvania; or they may be obtained from the first of the above places upon deposit of the following amounts for each set:

Refuse and Sewage Sludge Incinerator $20.00
Sewage Treatment Plant, Pumping Station and Sewers .. $25.00

Full refund will be made to actual bidders for return of one set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same periods, will be fifty (50) per cent of the deposit.

Gannett Fleming Corddry & Carpenter, Inc., Engrs. 600 N. Second Street Harrisburg, Pennsylvania.

Municipal Authority of the Town of Bloomsburg, Bloomsburg, Pennsylvania.

OFFICIAL PROPOSALS

Bids: March 8, 1951 (328)

Runway, Taxiway & Apron of Airport

PUERTO RICO TRANSPORTATION AUTHORITY
ENGINEERING DIVISION

The Puerto Rico Transportation Authority will receive sealed bids for Pavement of Runway, Taxiways and Apron of the Puerto Rico International Airport, Project No. 9-53-001-103, San Juan, Puerto Rico, until 2:00 P. M. (Atlantic Standard Time) on the 8th day of March, 1951, at San Juan, Puerto Rico, at which time and place all bids will be publicly opened and read aloud.

The successful bidder will be required to furnish satisfactory performance and payment bond or bonds.

All bids shall be based on wage rates not less than the minimum wage rates as predetermined by the Secretary of Labor of the United States, schedule of which is included in the Specifications.

Attention is called to the fact that the project is exempted from the 3% Insular Tax on public work contracts.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Chief Engineer of the Puerto Rico Transportation Authority, at San Juan, Puerto Rico.

Copies of the documents may be obtained by depositing one hundred dollars ($100.00) with the Puerto Rico Transportation Authority for each set of documents so obtained. The amount of the deposit will be refunded to each person who submits formal proposal and returns sets in good condition within ten (10) days after the opening of bids.

However ninety dollars ($90.00) only will be refunded to bona-fide Bidders for extra sets returned and those taking sets and not filing formal proposals.

A set of drawings and specifications will be available for inspection at the Civil Aeronautics Administration Office at 50 7th St. N. E., Atlanta 5, Georgia.

The Puerto Rico Transportation Authority reserves the right to reject any or all bids and waive any informalities in bidding.

A certified check or bank draft payable to the Puerto Rico Transportation Authority, U. S. Government Bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to (5%) five per cent of the bid shall be submitted with each bid.

José Feliciano
Acting General Manager

CONTRACTORS WATCH THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

HYDRAULIC ENGINEERS

Qualified by actual experience to make basic engineering determinations and to prepare studies, estimates, specifications, and designs for Hydroelectric projects.

Salaried position commensurate with experience; location in Boston. In reply please state educational qualifications, work experience, and salary desired.

Present employers will not be contacted before personal interview.

Stone & Webster
ENGINEERING CORPORATION
49 Federal St., Boston 7, Mass.

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 4 lines. To figure advance payment count 5 average words as a line. EMPLOYMENT WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line. *Replies* are forwarded each day as received at each of the offices mentioned without additional charge.

Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

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The advertising rate $14.25 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col. - 3 col.—30 inches to a page. E.N.R.

New advertisements received by February 26th will appear in the March 8th issue.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

CIVIL ENGINEERS Wanted—Senior Civil and Assistant Civil Engineers wanted with experience in Municipal and Public Works Engineering—Civil Service—apply or send record of education and experience to City Clerk, City Hall, Royal Oak, Michigan.

STRUCTURAL ENGINEERS for checking building plans, etc. Salary $4600 to $6400. Permanent, with Civil Service benefits. Apply, Department of Inspection, Room 100, District Building, Washington, D. C.

POSITIONS VACANT

ENGINEERS WANTED for industrial fire prevention field work by national insurance organization with offices in most major cities. These are permanent jobs with a real future, but candidates should appreciate that extensive away-from-home travel is involved. Age 26-40 preferred. P-8306, Engineering News-Record.

WANTED: STRUCTURAL Engineers, Mechanical Engineers and Industrial Architects; some defense work. Seelye, Stevenson & Value, 101 Park Avenue, New York, N. Y.

STRUCTURAL DESIGNERS and Draftsmen wanted by Baltimore consultant for indeterminate reinforced concrete and steel structures. Good salaries, paid overtime and vacations. State Education, detailed experience, tentative reporting date and salary requirements in first letter. P-8815, Engineering News-Record.

ENGINEERS WANTED, experienced in the design of sewage treatment plants, water works, surveying, preparation of plans and specifications. State experience, give references, salary requirements and military status. Reply P-8919, Engineering News-Record.

UTILITY ENGINEER. Registration and at least five (5) years' experience in connection with public transportation operation. Salary $6,000 per year. Location: Youngstown, Ohio. P-8307, Engineering News-Record.

SUPERINTENDENT—MUST have experience on sewer construction preferably on deep sewers in soft ground requiring bracing. Write giving age, experience, education and salary expected. P-8951, Engineering News-Record.

SUPERINTENDENT—ONE who has had experience on bridge construction. Work would be in Pennsylvania, New Jersey, Delaware, or Maryland. Advise full details including salary, age, education and experience. P-8952, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent for large Northern New Jersey heavy contracting firm. Must be fully experienced in reinforced concrete housing construction, and capable of meeting production schedule. Require full particulars, past experience and salary desired. Position available immediately. P-8960, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation and bonus plan, group insurance, good working conditions. Only top quality men. Send complete written information. Samborn, Steketee and Associates, 1214 Cherry Street, Toledo 2, Ohio.

SALES ENGINEER: Experienced structural steel estimating desirous developing into sales work. Age 25 to 35 only. Junior estimator also needed. Permanent with long established Fabricator. Full particulars, salary expected, photo to P-8972, Engineering News-Record.

(Continued on page 86)

ENGINEERS, DESIGNERS, DRAFTSMEN
— All Grades

Good positions open in San Francisco and Los Angeles for experienced engineers, draftsmen and designers for work on chemical, industrial and power projects. Refinery, process, mechanical, structural and electrical engineers are needed; also qualified layout men, designers and detailers for electrical, structural, mechanical and piping squads.

Write stating experience, education, age, references, salary expected. Applications held in confidence; prompt consideration.

BECHTEL CORPORATION

PERSONNEL DEPARTMENT

ROOM 11
220 BUSH STREET
SAN FRANCISCO, CALIF.

FOREIGN CONSTRUCTION

Construction Superintendents
Construction Engineers
Craft Supervisors

Key Supervisory Construction personnel needed in connection with long term Latin American Industrial Construction Program. Craft Supervisors required for electrical, piping, welding and mechanical installation.

Ability to speak Spanish and experience in Latin America essential.

Send complete record of experience and education with first letter. Also give date available and state salary requirement.

P-8955, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED
BY THE
HIGHWAY DEPARTMENT
OF AN
EASTERN SEABOARD STATE

Draftsmen
Roadway Designers
Drainage Engineers
Soils Engineers
Traffic Engineers

An Engineering Degree is desirable but not essential.
A resume of experience should be included in your first letter.

MANY OPPORTUNITIES FOR ADVANCEMENT

P-8979, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DESIGNERS
HIGHWAY and STRUCTURAL

Excellent opportunities for immediate permanent employment with a progressive organization. Experience preferred, but not essential, in engineering design for highways, bridges, airports, industrial, water and sewage treatment plants. Engineers needed also with experience in writing specifications and reports.

Desirable working conditions at salary commensurate with ability. Write for application blank. All replies will be held confidential and *will be promptly acknowledged*.

CAPITOL ENGINEERING CORPORATION
DILLSBURG, YORK COUNTY PENNSYLVANIA

WANTED ENGINEER

Assistant to Chief Engineer for engineering department of substantial California manufacturer of Road Building Machinery.
Experience in asphalt plants, batching plants, dryers, or kindred equipment desirable.
Excellent opportunity in a rapidly expanding organization.

P-8956, Engineering News-Record
68 Post Street, San Francisco 4, Calif.

Structural Designers and Detailers

with at least three years experience wanted by well established steel plant engineering and contracting firm specializing in constructing open hearth furnaces. Apply by mail.

LOFTUS ENGINEERING CORP.
610 Smithfield Street Pittsburgh 22, Penna.

DESIGN ENGINEERS

Graduate mechanical engineers or equivalent, experienced, for permanent work in plant engineering dept., organic chemical plant. Salary commensurate with experience. Contact personnel superintendent.

Celanese Corporation of America
BOX 148 BISHOP, TEXAS

CONSTRUCTION SAFETY SUPERVISOR

Engineer, 35-45 with at least 10 years' experience, wanted to supervise construction accident prevention program on Guam. Position available in March. Describe qualifications fully in first letter.

P-8966, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

PLANT & MAINTENANCE ENGINEER

Wanted, by national organization, for Middle-Atlantic location, graduate engineer, thoroughly experienced in plant engineering and maintenance. Must be free to travel. Give age, details of experience, salary expected, and when available for work. Write Box EN 128, 221 W. 41 St., N. Y.

WANTED
FINANCIAL MANAGER
For
Large Detroit General Contractor
Accounting knowledge necessary
Must have construction experience
3106 Guardian Building
Woodward 3-1415

WANTED

Foremen for Concrete Plant and Also Railroad Grading in South.

A. S. WIKSTROM, INC.
Skaneateles, N. Y.

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FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.
Information sent without obligation. Write today.

WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

(Continued from page 85)

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

OFFICE MANAGER-Accountant — Familiar with field and office heavy construction detail. All phases General and Cost Accounting, payrolls, taxes, etc. Will relocate. PW-8839, Engineering News-Record.

CIVIL ENGINEER, registered, 13 years experience in photogrammetry, topography, traverse, triangulation, property surveys, construction layout. Prefer small town location or within commuting distance. PW-8823, Engineering News-Record.

REGISTERED C.E. 20 years experience in design and construction of roads, bridges, streets, sewers, airports, etc. Desires permanent position. PW-8794, Engineering News-Record.

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial, power house, pumping stations and marine equipment. Desires permanent position. PW-8810, Engineering News-Record.

GENERAL SUPERINTENDENT, 28 years experience on Sewers, Dams, Tunnels, Water, Dirt Moving, Bridges, Concrete. PW-8809, Engineering News-Record.

CONSTRUCTION SUPT.—Industrial and heavy construction experience, 24 years with only 2 firms. Capable estimator and buyer available after March 15th. Prefer Ohio or vicinity. Resume on request. PW-8989, Engineering News-Record.

GENERAL SUPERINTENDENT: 25 years experienced in complete charge of industrials, open foundations, bldgs., viaducts, Bascule and fixed bridges, dams, rapid transit, R.R's., airports, rolling mills, defense plants, production cost wise. PW-8990, Engineering News-Record.

ENGINEER: GRADUATE C.E., registered, 20 years experience in plant and heavy construction. Also general engineering work. Desires permanent position commensurate with experience and qualifications. PW-8997, Engineering News-Record.

CONSTRUCTION ENGINEER, C.E. Grad—Vet —5 yrs. experience in industrial construction last 2 in power plants. Graduate work in power engineering. Locate preferably in N.Y. or N.J. Will relocate for right opportunity. PW-8945, Engineering News-Record.

SUPERINTENDENT-ENGINEER, Trunk and Intercepter Sewers. Hard driving, executive type go-getter; now employed, available March 1st., go anywhere. Contact J. P., Post Office Box 7213, Tampa 3, Fla.

ARCHITECT'S SUPT. since 1936 on factories, stores, college bldgs., & hospitals. If this experience is worth more to you than my present $125 per week would appreciate the opportunity of sending a complete resume. PW-8948, Engineering News-Record.

ENGINEER, CONSTRUCTION, 25 years general field engineering experience, primarily on building construction, pile foundations, soils, sanitary, subway and highway work. Member of New York State Society of Professional Engineers. Salary $150 per week. Johnston, Huntington Bay Road, Huntington, N. Y.

CIVIL ENGINEER, 38, married; registered; assoc. member ASCE. Experienced in municipal utilities and steam power plant construction supervision and administration. Desires employment in west, southwest. PW-8971, Engineering News-Record.

PART TIME WORK WANTED

STRUCTURAL AND Mechanical Engineer: Registered in Alabama, 25 years experience. Additional subcontract work wanted—structural design, steel and concrete detailing, piping and duct work. PTWW-8977, Engineering News-Record.

FOR SALE

Surveyor's Level

F. Eckel Serial No. 960. Fully reconditioned and adjusted. Complete with leveling head, tripod, and mahogany case. Exceptionally good optional system. Can be seen in New York. Will sell or swap for transit in repairable condition. FS-8944, Engineering News-Record.

COMPLETE PLANTS WANTED FOR LIQUIDATION OR OPERATION

Preferably in the Following Industries:

MACHINERY and METAL WORKING
FOUNDRIES MINING
REFINERIES STAMPING
DRILLING EQUIPMENT
MILLING and TOOLING
SCREW MACHINING
and any others

WRITE—PHONE—WIRE
Kenneth Kleinman

FABRIKANT STEEL PRODUCTS, INC.

50th Floor, Woolworth Building
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Tel. BEekman 3-3041
Cable Address FABKANT, N. Y.

Due to change in plant operation
WE WILL EXCHANGE
On suitable basis
FACTORY NEW DIESEL LOCOMOTIVE CRANE

For a 65 to 100 ton diesel electric locomotive or two 45 ton diesel electric locomotives.

Reply:
E 8986 ENGINEERING NEWS RECORD
520 N. Michigan Ave. Chicago 11, Ill.

Building Construction Cost Data

1951 (9th) Edition

A 98-page booklet of tabulated construction costs revised as of January 1951. 1600 average spot prices alphabetically arranged and broken down for labor and material, plus 110 explanatory paragraphs. Concise, Comprehensive, *Up-to-date, Handy.* $2.75 Postpaid.

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Any Trade and Type of Project
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MUrray Hill 5-7317 Founded 1922

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We are increasing our engineering organization for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill, Power Plants and have openings for men who are interested in permanent employment and advancement.

Such men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us furnishing full record of experience and qualifications.

This work is in our Cleveland office, and is on a 5-day, 45-hour week basis, with time and one-half over 40 hrs; also, vacation and holiday pay. Steady employment and a good opportunity with a good organization.

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2300 Chester Ave.
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DESIGNERS & DRAFTSMEN

Electrical, Mechanical

Structural & Hydraulic

Reinforced Concrete

Designers & Detailers

DEFENSE WORK OF HIGH PRIORITY

CHAS. T. MAIN, Inc.
80 Federal Street
Room 1501
Boston 10, Mass.

DESIGNERS

Experienced in
hydro electric power plants.

CORBETT-TINGHIR CO.
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DESIGNERS, DRAFTSMEN - ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-8539, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ELECTRICAL ENGR-ESTIMATOR

For large electrical contractor. Heavy power and industrial experience essential. Salary commensurate with ability. Write:

Broadway Maintenance Corp.
22 - 09 Bridge Plaza North
Long Island City 1, New York
Att: Electrical Construction Div.

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical	Power, lighting layouts and electrical controls.
Mechanical	Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.
Structural	Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St.
Cleveland 14, Ohio

19 Rector Street
New York 6, N. Y.

SERVICE MANAGER
EXPERIENCED
FOR BRANCH OF CATERPILLAR DEALER. OUR EMPLOYEES KNOW OF THIS AD.

P-8984, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CONSTRUCTION SUPERINTENDENT & ENGINEER

Wanted by well-established national organization. Must be graduate of technical college, and experienced in building construction and installation of equipment. Experience in chemical plants helpful. Must be willing to travel in continental U. S. State salary expected, and give detailed experience, together with age and education. Write **Box EN 125, 221 W. 41 St., N. Y.**

SALES ENGINEER

ENGINEERING and CONSTRUCTION

Large firm of Engineers and Constructors has opening in Pittsburgh for qualified Sales Engineer and Executive with contacts and recent experience in selling engineering and construction services. Submit complete information stating experience, education, personal contacts, references, date available and salary requirements. All replies will be treated confidentially.

SW-8869, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ESTIMATOR

Permanent position for a man approximately 35 years old with large Pittsburgh firm of Engineers and Constructors. Must be thoroughly experienced in Commercial, Industrial and Institutional building construction. Salary limited only by applicant's ability and experience. Engineering background preferred—not essential. Submit information stating experience, education, age and availability. Replies confidential.

P-8870, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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SUBJECT TO PRIOR SALE

1950 Lima 802 Shovel 2 yd. Dipper, 14'4" Crwlrs., 40" Trds., 8-cyl. Ca. D-17000

1950 Lima 604 Shovel 1½ yd. Dipper, 14'7" Crwlrs., 34" Trds., 6-cyl. HIS Cummins Diesel

1950 Lima 604 Shovel 1½ yd. Dipper, 70' Crane, Clam, Drag, 14'7" Crwlrs., 34" Trds., 6-cyl, HIS Cummins Diesel

20—1950 White WC-2664 Garwood & Marion 8-10 yd. Dump Bodies

Ingersoll-Rand K-210 Portable Compressor, Wauk. 140-GS

Warco 105 IHC PD-40 Diesel Grader, 13x24 Tires, Cab, Lights, Tandem, Leaning Front Wheels, Scarifier, Starting Eqpt.

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1—105' LeRoi "Tractair" Compressor
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1—2 yd. LaPlante-Choate Scraper
4—#4, 3½ & 5 Champion Jaw Crushers
1—1020 Good Roads Overhead Ec. Jaw Crusher
1—24"x16" New Holland 2-roll crusher
1—12"x16" Bonded 2-roll crusher
1—#4 Allis-Chalmers Pulverator
1-24"x16' Apron Feeder
1—16"x25" Flory 2-dr., 3 ph. Elec. Hoist
1—20 ton Stiff-Leg Derrick, 125' boom, 100 HP, 3 ph. motor
1—6" Mooretrench Well Point System w/3 ph. mtr.
1—500 GPM Hale 250# Fire Pump, gas, eng.
1—600 GPM Worth. 100#, 2-stg. Cent. Pump, 100 HP, 2300V motor
1—100 TPH Stephens Adamson Car Load, 3 ph. mtr.
1—250 gal. Chausse Tar Heater, pneu. tires (New)
1—6-S CMC Non-tilt Concrete Mixer, pneu. tires

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Hagerstown, Maryland

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late models—fully rebuilt
CAT. D-8 cable 2U series w. DW10 wagons
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INTL. TD-18 hydraulic and cable
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New USTRAC light-duty dozer and loader
Critical parts for CAT.-Intl. A-C tractors

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One (1) Rex Dual Drum Paver.
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Two (2) Gar Wood 6-yard 2-wheel Scrapers.
One (1) International TD-18 Tractor w. Control U.
Three (3) Allis-Chalmers HD 7 Tractors with Bulldozers.
Four (4) Allis-Chalmers HD 10 Tractors w. Dozers.
One (1) ¾ yd. Link Belt Dragline, Cat Diesel Eng.
Four (4) Super C Tournapulls, excellent condition.

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1—5 ton Hughes Keenan International Tractor Crane
1—2 Ton Garwood-Case Tractor Crane
2—Worthington 315 c.f. Compr.—pneumatic tired
1—Worthington VMV-40 Wagon Drill
8—Worthington Paving Breakers
3—Jack Hammer Drills—1000 bits
2—#3 McKiernan-Terry Sheeting Hammers
3" self priming Centrifugal and Diaphragm Pumps

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Bearing Piles and H-Beams

8" x 36#	40'
10" x 42#	40'
10" x 49#	40'
12" x 53#	40'
12" x 65#	40'

Plates — from 3/16" to 1"

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Stillwell 4-2720

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Largest stocks in U.S.
NEW & RELAYING RAILS
Track Tools and Accessories

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Chicago 4, Ill. Houston 2, Tex.

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All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

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● **LIMA SHOVEL**
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Model WD-60 Diesel

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Phone 4-8465

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Shovel Attachment for Lorain 820, complete new 1947, priced $4,500.00.

Bay City model 45, backhoe attachment, dug five basements, $2,350.00.

STONE EQUIPMENT CO.
10038 W. Jefferson River Rouge 18, Mich.

FOR SALE

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Campanella & Cardi Const. Co.
780 Jefferson Blvd. Hillsgrove, R. I.

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Our craftsmen have a completely equipped department fully able to accommodate the repair of all makes of transits, levels and measuring tape. Work includes thorough overhaul, cleaning, oiling and adjustment.

Precision work guaranteed.

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317 W. Court St., Milwaukee 12, Wis.

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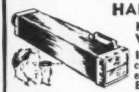
DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.



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Now Improved, with U.S.A. Waterproof Plastic Case

Ideal for spot checking grades, elevation, etc. Easy to use. $1.85 P.Post 15¢ Extra

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WANTED

GOOD USED DIESEL
ELECTRICAL or MECHANICAL
STANDARD GAUGE

LOCOMOTIVES

45-Ton 65-Ton 70-Ton
80-Ton 100-Ton

W-8789, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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USED CEDAR RAPIDS
MODEL FA PORTABLE

ASPHALT PLANT

(2500# CAPACITY)

PAVIMENTOS, S.A.
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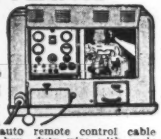

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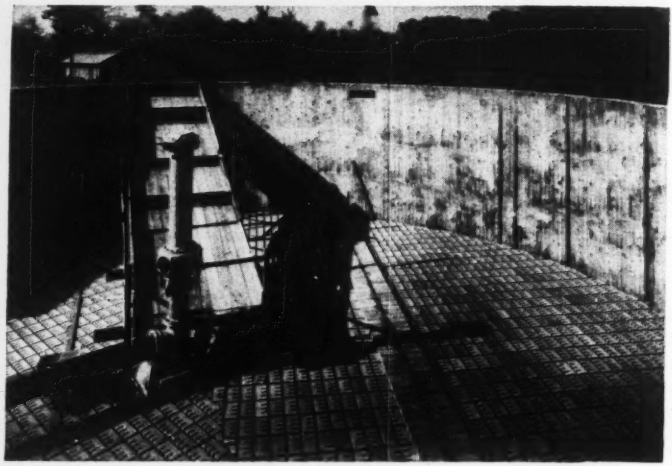

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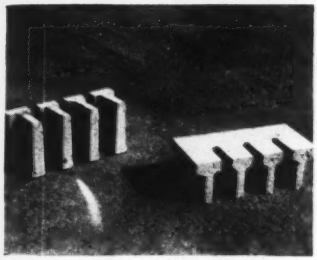

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(*Continued on page 98*)

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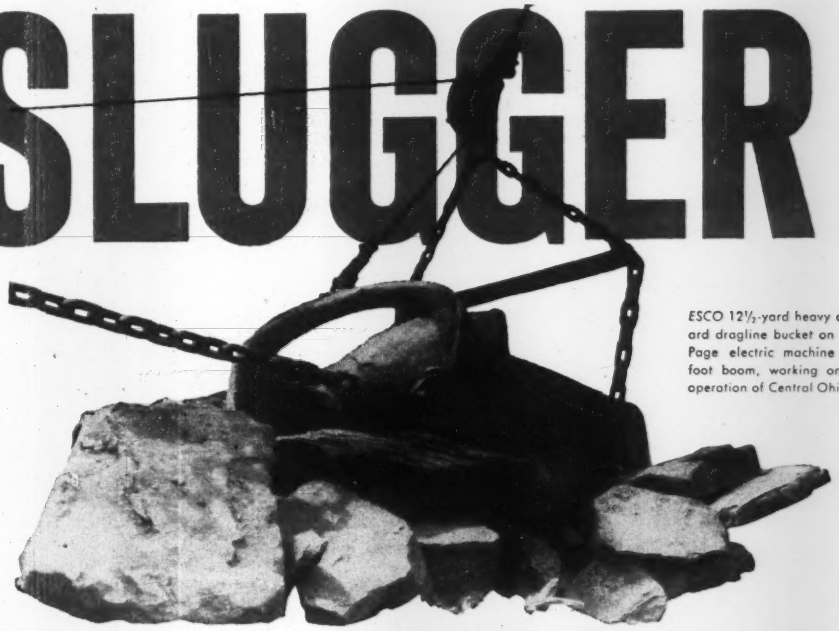

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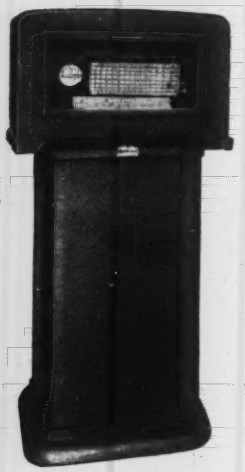

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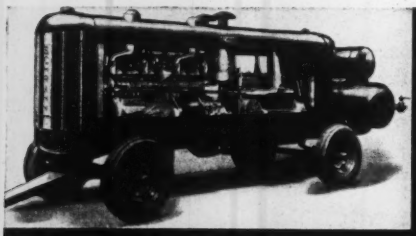

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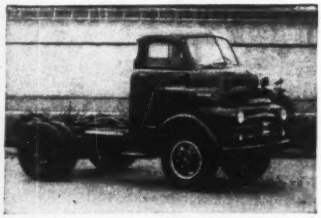

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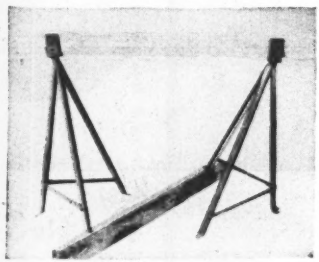

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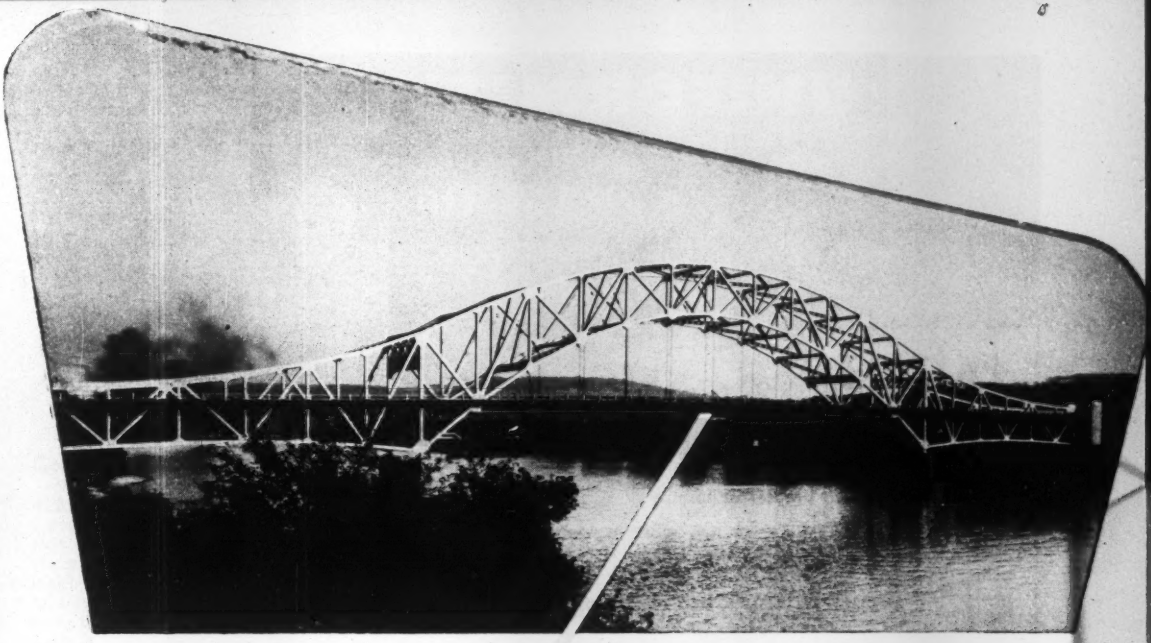

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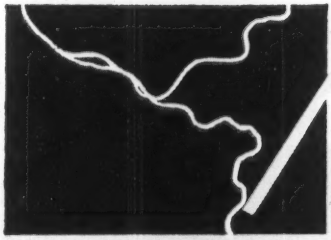

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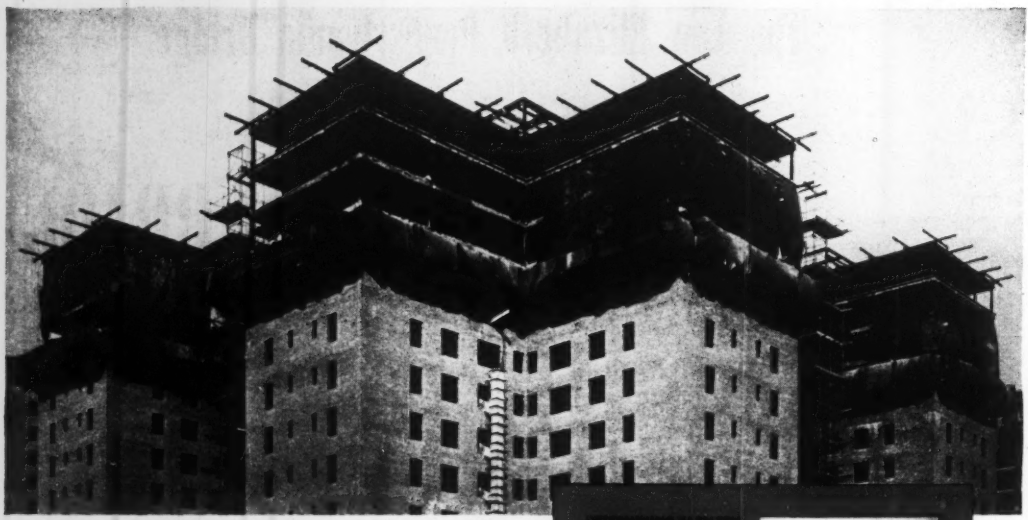

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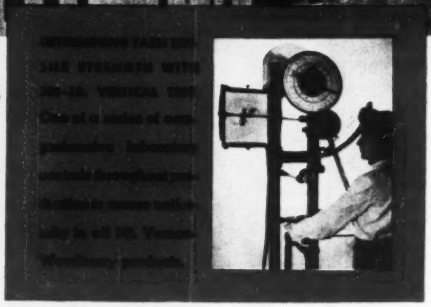

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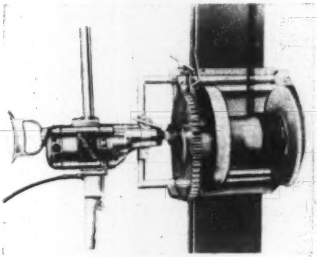
forms a colored, transparent film, within 15 min. The film is removable with kerosene or solvent.—SWAN-FINCH OIL CORP., RCA BLDG., W., NEW YORK 20, N. Y.



Combination drill; hoist

Model 163 1-in. drill combined with American Handiwinch provides a complete power hoist. Adapter kit that requires no special tools for mounting locks Skil Drill and Handiwinch in perfect alignment. Hoisting capacity is 1,000 lb at 10 fpm.—SKILSAW, INC., 5033 ELSTON AVE., CHICAGO 30, ILL.

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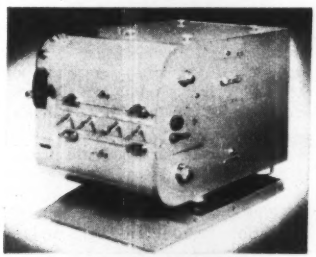
Activated-carbon gas-and-vapor adsorber determines the concentration of air-entrained gaseous and vaporous contaminants. The collecting device consists of dual, perforated, activated-carbon-filled canisters assembled integrally with a motor-driven air blower. It is designed to permit accurate measurement of the amount of air blown through the carbon in a certain period of time. From these factors, it is possible to calculate the degree of air pollution.—W. B. CONNOR ENGINEERING CORP., SHELTER ROCK LANE, DANBURY, CONN.



Recording oscillograph

Compact unit provides an accurate method of recording as many as fifty channels of separate static or dynamic data on a single strip of sensitized film or paper. Record magazines are quickly attachable daylight-loading

(Continued on next page)

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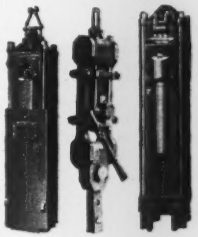

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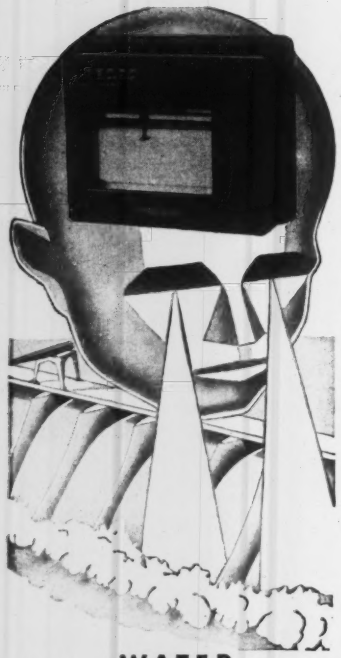

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separate units. Paper drive roller is driven by a cog belt. Speed adjustments from ⅛ to 60 in/sec are accomplished by a lever on the front panel. A red indicator light indicates when paper is torn, expended, or otherwise not feeding properly. Transverse timing lines are photographed every 1/100th sec. Weight of the unit is 56 lb. — MIDWESTERN GEOPHYSICAL LABORATORY, 2803 W. 40TH, TULSA, OKLA.

Self-clinching nail

Stainless steel ES-nail features increased holding power and complete penetration at stud locations. It is recommended especially for face-nailing asbestos shingles directly to nonwood sheathing. Rectangular opening in the driving leg permits a bellows-like expansion of the sides of the nail into the sheathing material eliminating danger of loose shingle corners at nailing points where sheathing is backed by studs or wood members. It also permits the nail head to flatten completely and without distortion.—ELASTIC STOP NUT CORP. OF AMERICA, 2330 VAUXHALL ROAD, UNION, N. J.

Friction glazing clips

Friction-type clips are designed for glazing Thermopane units having an overall thickness of ½-in. in steel, aluminum, or wood sash. The clips are made from cadmium-plated spring steel. Advantages claimed are: They act as a resilient and permanent setting block; they provide equal spacing between the edge of the glass and the sash frame; they allow ample clearance between the back and face stops which affords a uniform glazing compound bed; and the sharp points punctured in the metal act as a frictional grip in the sash frame and keep the units from shifting.—LIBBY-OWENS-FORD GLASS CO., NICHOLAS BLDG., TOLEDO 3, OHIO.

Hydraulic system

Packaged unit combines compactness with adaptability. It is available in a range of 1.8 to 8.25 gpm, with pressures to 1,000 psi. Totally enclosed motor ranges from ¼ to 5 hp with manual, electro-pneumatic, or hydraulic valve control. Complete unit includes motor, solid coupling, vane-type pump, reservoir, oil cooler, air filter, overload valve, pressure-regulating valve, and 3 or 4-way valve or combination of both.—HARCO INDUSTRIES, 20 CURTICE ST., ROCHESTER 5, N. Y.

Non-skid floor surfacer

Liquid-based carrier blends with any type of heavy-duty floor paint to form a durable, non-skid floor surfacing. Adtex is said to not affect the properties or drying characteristics of the paint to which it is added. It can also be used with oil-based, rubber, casein, or water-mix paints to provide a textured finish; or for waterproofing exterior, masonry paints. — LOWEBCO, INC., 1525 E. 53RD ST., CHICAGO 15, ILL.

New Product Briefs

Type QZE enclosed motors (Fairbanks, Morse & Co.) have been extended to cover a line with continuous duty ratings built in NEMA standard frame 284. Two models added have ratings of 7½ and 5 hp.

Gas-line valve has a chain-suspended ball that automatically drops down to seal off the line in event of severe explosion or earthquake. The Guardian Valve Co., Redwood City, Calif., is preparing these valves in sizes ranging from 1 to 6 in.

Brush-applied steel coating is fire resistant, will not burn, crack or peel. Metl-Kote is a product of: Corrosion Engineering Co., Houston 6, Tex.

Textured finish for wood and masonry structures is fused to the surface by air-blasting. This siding is said to be waterproof and to provide complete insulation. Produced by: Re-Nu-It Corp., New York 18, N. Y.

Self-adhering bandage can be put on with one hand by the injured person himself. When used as a pressure bandage for burns, it is said to retain tension without slipping or unwinding. Produced by: Davis Emergency Equipment Co., Inc., Newark, N. J.

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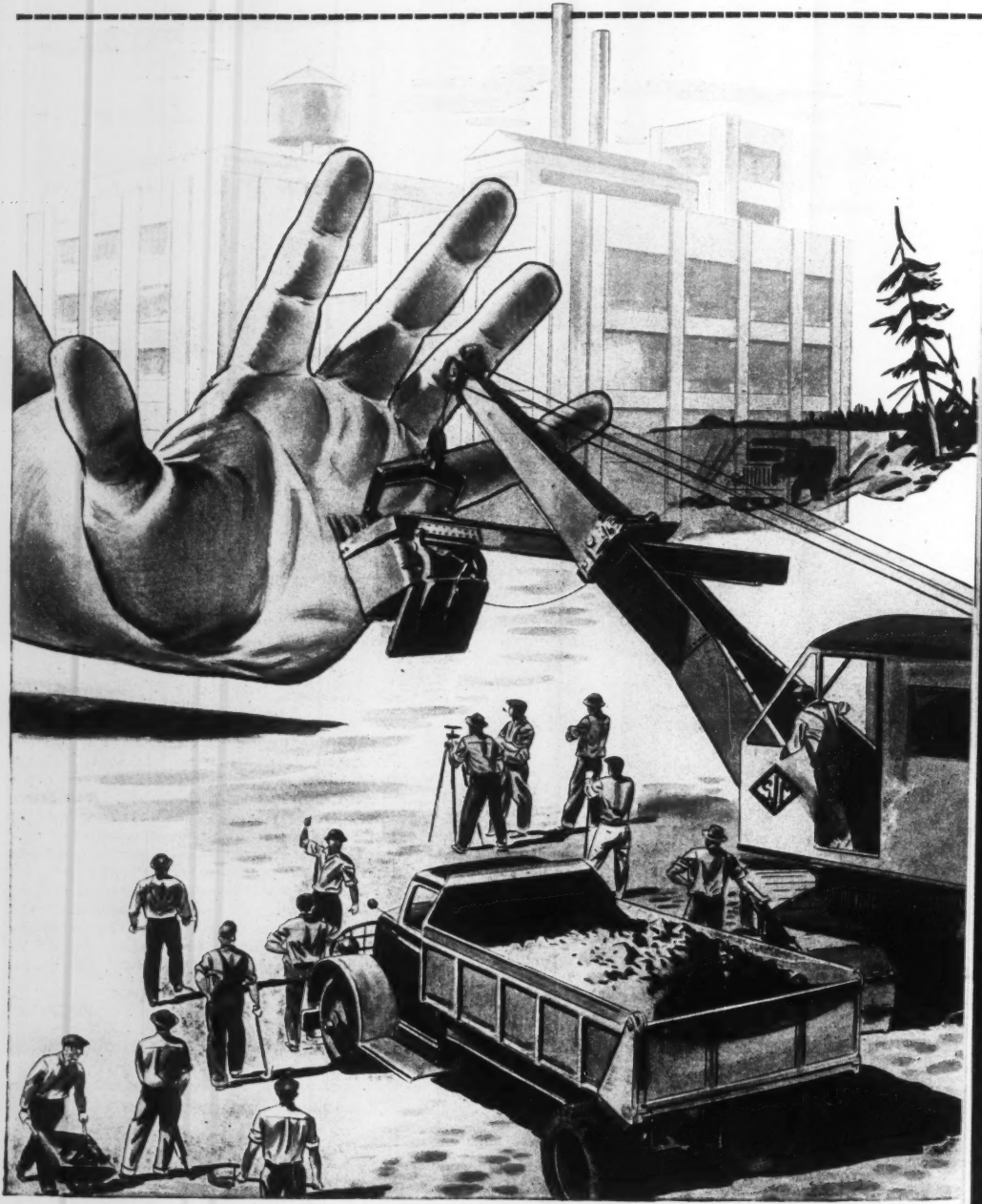

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Manufacturers' Publications

Equipment-operator's handbook—Printed in comic-book style, this handbook (32 pp) is especially prepared for heavy-equipment operators. It contains information on the operation of bulldozers, scrapers, rippers, and cable controls, and describes high-speed hauling, loading, and grade stakes familiarization. Designed to make operation of earth-moving equipment easy to understand, the booklet shows many of the techniques in earth-moving operation as compiled by operators and engineers in the field. It explains when to use bulldozers, how to pioneer side-hill cuts, push loading, rock and tree removal, soft-fill work, do's and don't's of proper tractor-dozer adjustment and operation, and other earth-moving applications. Techniques are simplified through the use of familiar scenes in the cartoon illustrations which show the operator how to get the best performance and job application possible. — CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

Steel scaffolding — Bulletin describes line of steel scaffolding and allied equipment for building contractors. Special emphasis is placed on the Adjustomatic locking device that eliminates all loose parts such as bolts, nuts, and coupling pins. The folder is 12 pages in length.—AUTOMATIC DEVICES, INC., 1260 HODIAMONT AVE., ST. LOUIS 12, MO.

Feed-water control—Three-element air-operated feed-water controls are described in a 16-p bulletin. Bulletin 105-C features a discussion of problems encountered in feed-water control, and explains how the Bailey system helps solve them. Diagrams, cutaway views, typical chart records, and photographs of modern installations are used to amplify the discussion.—BAILEY METER CO., 1050 IVANHOE ROAD, CLEVELAND 10, OHIO.

Fire extinguishers—Technical bulletin (No. 9) explains the effect of dry chemicals in putting out fires in electric motors and generators. It also explains how the residual deposit of dry chemical is removed after the flames are extinguished, permitting subsequent use of the equipment.—ANSUL CHEMICAL CO., MARINETTE, WIS.

Bearing maintenance—Techniques and successful maintenance, installation, and removal procedures for successful

bearing operation are listed in a new pamphlet. This is the first of a series and is supplied with a file-folder type of binder for inserting succeeding issues. Purpose of this series is to help eliminate faulty maintenance practices, and to reduce the replacement of bearings for reasons other than normal fatigue. The pamphlet contains a photograph showing the various symptoms of faulty bearings, lists the causes, and contains hints on how to correct the fault. — ANTI-FRICTION BEARING DISTRIBUTORS ASSN., 1900 EUCLID AVE., CLEVELAND 15, OHIO.

Steel sheeting—How to use lightweight corrugated steel sheeting to control movement of soil or water is described in this illustrated 10-page booklet. The bulletin (SH-4650) points out where Armco interlocking and flange-type sheeting can be used to advantage, and contains photographic case-histories to show that the sheeting has ample strength, is fast driving, and results in lower costs. Emphasized, is the fact that steel sheeting can be pulled and re-used many times. Also included is data on driving, properties, and how to figure sizes and spacing of wales and struts.—ARMCO DRAINAGE & METAL PRODUCTS, INC., GENERAL OFFICES, MIDDLETOWN, OHIO.

Chain drives—Handbook contains information on how to install, maintain, and operate roller chain. It tells how to plan chain-drive layouts, and offers hints on lubrication and roller-chain selection. Technical data cover conversion tables, horsepower rating charts, list prices, and specifications for all types of roller chain and extended-pitch conveyor chain.—ATLAS CHAIN & MFG. CO., PHILADELPHIA 24, PA.

Expansion joints—Four-page leaflet describes four types of expansion joints —single end, double end, single end with limited movement, and double end with limited movement. Sizes listed range from 3-in. ID, to 24-in. OD. — DRESSER INDUSTRIES, INC., DRESSER MFG. DIV., BRADFORD, PA.

Diesel engines—Series 71 2-cycle diesel engines are described in this 36-p catalog. It covers single and multiple engine units from 2 to 24 cylinders, ranging from 32 continuous to 780 intermittent horsepower. It contains data on GM design and interchangeability of parts; a "Select-Your-Power" chart covering 57 standard power take-off and 7 torque-converter models; engine illustrations; and an outline of Detroit Diesel service facilities.—DETROIT DIESEL ENGINE DIV., GENERAL MOTORS CORP., 13402 W. OUTER DRIVE, DETROIT 28, MICH.

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Letter from the OHIO RIVER VALLEY

Seen from the Indiana banks

The Ohio River Valley Water Sanitation Commission has just had its second birthday.

In looking back over what has been accomplished throughout the eight participating states of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, West Virginia, and Virginia, Oscar R. Ewing, Federal Security Administrator, points out that 75% of the communities of more than 5,000 population in the Ohio watershed have taken action to clean up their streams by providing proper sewage and waste disposal.

In addition a grassroots program to promote the adoption of waste treatment measures among 1,400 industries is under way. One helpful step toward this goal: a manual, teaching plant operating personnel pollution control by "good housekeeping" practices.

• **The constant hammer**—These accomplishments reflect a conscientious and much hammered attack on water pollution by the regional commission and the three federal agencies cooperating with it —the Public Health Services of the Federal Security Agency; the Fish and Wildlife Service, Department of Interior; and the U. S. Corps of Engineers. These results are a tribute to what can be done through coordinated, voluntary action by states.

• **The report cards**—Way out in front is Ohio. (On a straight count basis) but here in Indiana we have a higher percentage of communities that have completed their assigned projects.

Ohio has completed jobs in 33 of 76 cities planning sewage treatment plants and pollution abatement—about 43%.

In contrast, the Hoosiers have completed work in 28 of their participating communities, running ahead of the Buckeyes at 56%. Right now four Indiana cities have plants going up. They are Richmond, enlarging an existing service at a cost of $860,000; Greencastle, doing the same thing at costs of $450,000; Warsaw, erecting a new treatment plant costing $412,000, and Washington, installing sewers and sewage treatment facilities costing $1,260,000.

Twelve more Indiana towns are preparing plans, and six have no plans. Ohio has two plants under construction, and 31 more cities planning to join the fight.

In other states the work breaks down like this: Illinois, 11 of 15 cities with completed jobs, two in the planning stage, and two cities without plans; Kentucky, 11 of 30 cities with work completed, and twelve planning; Virginia has one of four cities with work completed, and two cities planning; West Virginia has 17 planning work, and two of 26 have completed work; Pennsylvania has 17 out of 105 communities with work completed, and 78 planning; three of four have completed work in New York, and the others are planning.

Typical of the sort of action being taken by the states of the region is the story of one Hoosier town now involved in the program: Madison, right on the Ohio.

• **How Madison got spanked**—Promotion for sewage treatment plants was begun in Madison fresh in the '30's when the Public Works Administration was carrying the load for municipalities and states.

State engineers of the Indiana Stream Pollution Board urged the town to accept PWA work for an Ohio River sanitation plant, but citizens balked at the cost, and refused to "break the ice" when other centers were apathetic to pollution control. A sewer system was built along the town's Crooked Creek, north of the center, but the main concept seemed to be hibernating for good, until 1945.

At that time Madison was ordered by the state board to build a sewage treatment plant by July, 1947. The town was warned that unless the plant was under way by the deadline the city would be subject to court order, as provided under the ORVWSC compact which Indiana had adopted.

• **The big delays**—But there were delays. Preliminary surveys went along alright, but problems arose over the linking of Madison State Hospital with the proposed system. This brought on extensions of the original order until Madison itself took the problem in hand and approved a $320,000 bond issue to defray costs of constructing an Ohio River interceptor and sewage treatment plant. Eastern money flowed in at 2.5% for 21-years.

Construction started almost immediately, and work was completed in November of 1950.

• **The ultimate challenge**—Henry Ward, commission chairman, calls the Hoosier picture a "promising record of progress." But the program for the Ohio watershed may take a decade, he says.

"It would be less than frank to intimate that two years of effort on pollution abatement problems that have been a century in the making already has produced marked results in terms of clearer waters," he writes in the annual report.

"Before the streams in the Ohio Valley will show the ultimate improvement that must be achieved, hundreds of municipal and industrial waste treatment plants will have to be placed into operation."

THE OHIO RIVER—object of the Ohio River Valley Water Sanitation Commission's cleanup efforts, as seen in Cincinnati, commission headquarters. A decade of anti-pollution work lies ahead, the commission reports.

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4. COMPOSITE . . . 5. GOW CAISSONS

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At left, excavating starting pit and placing first cylinder. At center, excavating bell at bottom of the steel-lined shaft. At right, the completed caisson.

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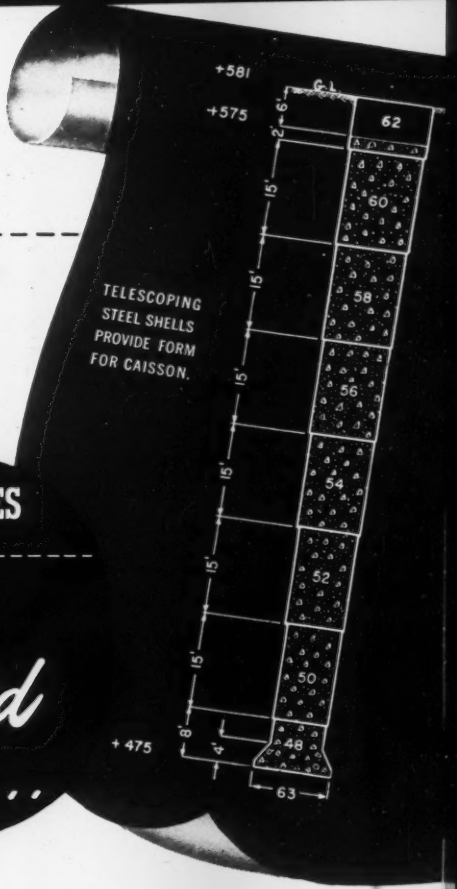
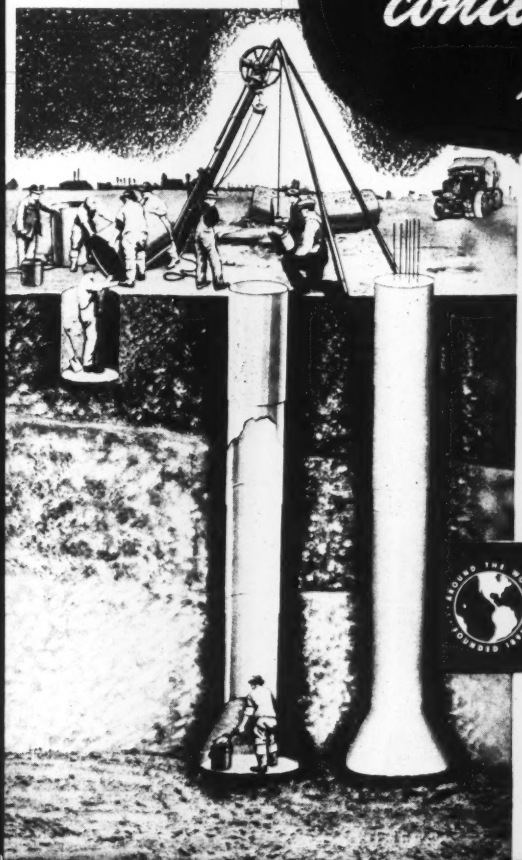
For heavy concentrated loads . . .





Raymond Gow caissons are efficient and economical for supporting heavy concentrated loads under certain soil conditions. The Gow method consists of hand or machine excavation carried on inside of telescoping steel cylinders. Where the caisson rests on hard ground, a bell is usually formed at the bottom to distribute the load over a large area. Where the caisson rests on rock, the bell is usually omitted. After excavation is completed, the steel cylinders are removed as the concrete is poured.

Because heavy equipment is not required and the steel cylinders are re-usable, Gow Caissons are economical in most soils. Your inquiry is cordially invited.

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